

Artificial Intelligence-Based Crime Prevention Policy in Indonesia

Ali Furkan¹, M. Endriyo Susila²

alifurkanbima@gmail.com

^{1,2} Master of Law, Muhammadiyah University Yogyakarta, Indonesia

Article Info

Received: 2024-08-12

Revised: 2024-02-21

Accepted: 2024-03-31

Keywords:

Artificial intelligence
technology, Law
enforcement, Indonesia

Abstract

Artificial intelligence (AI) technology has become a major subject in security and privacy issues in the digital era. This article aims to explore the impact of the use of AI technology on crime and law enforcement, with a focus on the Indonesian context. This research uses a descriptive analytical approach to evaluate trends and impacts of using AI in crime prevention. Data was collected through literature studies and analysis of policies and regulations related to AI and law enforcement in Indonesia. The analysis results show that the use of AI technology in law enforcement in Indonesia has increased significantly over the last few years. This is reflected in the number of incidents and controversies involving AI, as well as in the implementation of policies and regulations governing its use. While AI offers great potential in supporting crime investigation and detection, challenges related to privacy, fairness, and accountability also arise as it develops. The use of artificial intelligence technology in law enforcement in Indonesia raises a number of impacts and challenges that need to be considered. Despite its potential to increase the effectiveness of law enforcement, protecting privacy and human rights must be a primary focus in the development and implementation of AI technologies.

I. Introduction

In this era of rapid and rapid technological progress, it certainly has positive and negative impacts in facilitating work and human activities to support complex activities, such as artificial intelligence (AI) technology (Holzinger et al., 2019). Artificial Intelligence (AI) or artificial intelligence is a technology or man-made system designed through a computer system to be able to imitate human reasoning and have a frame of mind like humans (Ertel, 2018).

In the progress of artificial intelligence, AI experiences several levels of change or

evolution, namely the first level is called Artificial Narrow Intelligence (ANI) which is a weak form of AI, then the second level is known as Artificial General Intelligence (AGI) which is the Strong AI level which has capabilities comparable to humans and the last level Artificial Super Intelligence (ASI) is a form of AI created to surpass human capabilities (Jackson, 2019). However, the current progress of AI technology is still at the level of weak AI, so there are still many possibilities for errors in operation and can even be used to commit crimes in the form of breaking the law or criminal acts, where misuse of the technology occurs due to the lack of complex legal regulatory security systems. as a barrier in binding something that allows criminal acts to occur, this is due to the massive misuse of technology in cyberspace or what is called cybercrime (Mintz & Brodie, 2019).

Cybercrime is a criminal act that occurs in cyberspace through criminal acts using computer technology, resulting in social harm, where cybercrime has various types of criminal acts, one of which is called malware or malicious programs or software that infiltrate computers or computer systems (Noerman & Agustanti, 2023). Based on internal data from the company's cyber security center in Washington, the United States, the cyber attacks that most attack Indonesia are Malware. Malware is still something that is feared in the cyber world because malware is specifically designed to be hidden and can remain in a system for a certain time. without the system owner knowing, so that the system security cannot know that the system has been infected with malware ((Muhammad et al., 2020).

Especially in the current era of Artificial Intelligence technology which can simulate human intelligence in machines that are programmed to think like humans, thus making AI technology have the characteristics and ability to rationalize and take actions that have the best chance of achieving certain goals through utilizing the power of AI technology. which is revolutionary in industry 4.0 (Effendy et al., 2023). On the other hand, the exploration of this technology can make AI-based malware able to spread malicious applications and cannot be traced in the data payload and can hide the conditions for opening the malicious payload so that it is almost impossible to reverse engineer the threat, then potentially bypass anti-virus intrusion detection systems (Winarno et al., 2023).

Apart from that, the most surprising use of AI is deepfake technology which can produce realistic imitations of voices, faces and other body parts to be used to deceive victims, namely a technique for creating human image synthesis based on artificial intelligence, where an image or video can be combined using certain methods. so that the results appear real, this deepfake technology can change audio and movements as well as visual details that are very identical to the victim, so it is very likely to be used to mislead information or hoaxes that affect public instability (Mariyam & Setiyowati, 2021). If this technology is not limited then the worst possibility is that the use of deepfake technology can manipulate images or videos using the faces of famous figures or public figures, therefore the reputation and good name of these public figures can be tarnished and perpetrators who spread hoax news will manipulate and deceive many of the general public. with false news (Salsabilla et al., 2023). therefore giving rise to various crimes such as hate speech, propaganda tools, political tools, and using deepfake technology to distribute content in the form of pornography (Santoso, 2022).

In Indonesia, there are several examples of deepfake cases using artificial

intelligence technology involving well-known public figures, namely Nagita Slavina and Syahrini, with indecent scenes in the form of doctored videos using artificial intelligence technology and more recently, more horrendous due to the misuse of artificial intelligence technology which displays Pak Jokowi's video. gave a speech in Mandarin, then the Minister of Communications and Information, Budi Arie Setiadi, quickly responded to the video saying that the video was the result of AI engineering or a misleading deepfake (Multazam & Widiarto, 2023).

The use of technology for evil purposes has also occurred in several countries. in 2019, cybercriminals used AI voice-generating software to imitate the voice of the Chief Executive of a UK-based energy company and successfully obtained \$243,000 and distributed transfers of the funds to bank accounts located in Mexico and other countries (Kamar et al., 2023). Another relevant case occurred in January 2020 where criminals used AI technology to simulate the voice of the director of a transnational company (Kadim & Sunardi, 2023). Through multiple calls with the branch manager of a bank based in the United Arab Emirates, criminals managed to steal \$35 million held in several bank accounts, leading the bank's branch manager to believe that the funds would be used for company acquisitions (Meirotie et al., 2022).

Massive audio and video falsification poses relevant and complex legal challenges for the investigation and prosecution of crimes, because law enforcement authorities do not yet have the full capacity to secure evidence on an international scale and often lack a legal framework, especially procedural steps in criminal law to ordering the preservation of digital evidence and investigating cyber crimes. This is a major obstacle in the structure of criminal law enforcement against artificial intelligence technology (Fauzi & Rahman, 2020). Due to the complexity posed by the misuse of AI technology for criminal purposes, law enforcement agencies, key stakeholders or the government must strive to encourage the development of strategic partnerships between law enforcers to fight abuse more effectively (Maulina et al., 2020).

In essence, law has the capacity to act as an instrument of Social Engineering and Social Control (Hadinoto & Azhar, 2018). law as a means of Social Engineering is an instrument to achieve order and legal awareness in society as per the ideals of law and at the same time is responsive to social changes and then law as a Social Controlling instrument which seeks legal order or a strategy to prevent violating and deviant behavior in life society (Appolonov, 2021). This is in line with the principles of *ius constitutum* as positive law currently in force and *ius constituentum* as law that is planned or aspired to (Hatidja et al., 2022). Some of these things describe the nature of law, where law is a determining factor in people's lives and where law adapts to developments in society itself, both social and technological developments (Sirait et al., 2023).

The prospect of developing new regulations is a breakthrough that will regulate relevant aspects regarding the impact and development of Artificial Intelligence systems and relate to the protection of basic rights for victims (Budiman, 2022). Moreover, Indonesia is a country that adheres to the continental European legal system, where all actions and actions must have written rules in carrying out the goal, namely legal certainty (Dahlan et al., 2021). Based on the concept of a state of law in its constitution as stated in Article 1 paragraph (3) of the 1945 Constitution, Indonesia is a state of law

which explains the normative recognition of everything or events that are required to follow the regulatory order that has been inaugurated by the state as a guide to behavior in the state (Djamzuri & Mulyana, 2023).

In the Indonesian legal order, there are several divisions of law, one of which is criminal law which regulates behavior in public life and if these regulations are violated, criminal sanctions will be given (Sakban & Resmini, 2018). In Indonesian criminal law itself there are two divisions of criminal law, namely general criminal law and special criminal law, each of which has its own coverage and scope, therefore general criminal law is criminal law which covers and is aimed at every legal subject without regard to specific individuals. , where this criminal law has been codified in the division of formal criminal law contained in the Criminal Procedure Code (KUHP) and material criminal law contained in the Criminal Code (KUHP), while special criminal law is criminal law that is formally or the material is outside the codification of the Criminal Code and Criminal Procedure Code (Kurniawan, 2023). From the division of criminal law, the existence and use of artificial intelligence technology should be included and formed in general criminal law or special criminal law or a regulation regarding AI technology should be made, either specifically in the form of a law or a separate chapter, for example the formation is made in Law number 19 of 2016 concerning electronic information and transactions (UU ITE) (Lestari et al., 2022).

In the near future, AI technology will have an important role in every aspect, which will also have an impact on criminal aspects or violations caused by AI, because it does not have sufficient legal status to be explained in the Indonesian criminal system, so that this problem will become a problem in criminal law enforcement (Murdayantin et al., 2023). Because AI will be developed on automotive technology with cars that are not driven manually or then automatically, imagine that a car that uses artificial intelligence technology is then involved in a traffic accident and causes the victim to die, so who is responsible for that incident (Simanjuntak, 2019).

Basically, if there is no error then it cannot be punished, so this raises the question of whether AI can be responsible for its own actions or what if the results of AI's thinking lead to criminal acts, then who is responsible in the eyes of the law, Is it the AI or the AI Maker and or AI users themselves (Gandrova & Banke, 2023). Moreover, in criminal law or laws relating to AI technology, up to now there are no regulations that specifically include artificial intelligence in regulatory considerations and there has been no optimization of regulations relating to the use of artificial intelligence, which could be a legal loophole for perpetrators. misuse of artificial intelligence technology (Hariri et al., 2023). Therefore, Indonesia as a rule of law country, in principle, recognizes the principle of due process of law which confirms that everything that is done or committed must be based on statutory regulations and in criminal law it is also explained that the imposition of punishment on a person cannot be carried out without the existence of a law that regulates it. (principle of legality), therefore problems that have the potential to be non-criminal and detrimental to society must be resolved quickly with the existence of law as a solution (Hamzani et al., 2020).

Based on the background explanation above, the problem of this research can be formulated with a number of questions, namely: What are the forms of crimes committed using artificial intelligence technology? And what is the future concept for dealing with

crime based on artificial intelligence in Indonesia? And the aim of this research is to discuss the use of artificial intelligence, which is a new technology that can be misused to carry out actions that are detrimental to other people, especially as the existence of artificial intelligence technology today is very disturbing for Indonesia. Therefore, the existence of artificial intelligence needs to be optimized in the form of regulations and providing sanctions as a solution to overcome the use of artificial intelligence which leads to the category of criminal acts. Therefore, "artificial intelligence-based crime prevention in Indonesia" has been used as the title of this research.

2. Research Method

This research is dogmatic research whose focus is to find legal rules, legal principles and legal doctrines that are relevant to answering legal issues in artificial intelligence-based crime prevention policies in Indonesia. This research uses primary legal materials such as the Constitution of the Republic of Indonesia (UUD 1945), Law Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Electronic Information and Transactions, as well as the Criminal Code (Criminal Code). Secondary legal materials include literature from various sources such as books, articles and scientific works from legal experts and related laws and regulations, as well as tertiary legal materials such as legal dictionaries or encyclopedias to support understanding. Data collection techniques were carried out through normative literature studies using various sources including the internet.

3. Results and Discussion

In the results and discussion of the research, the Artificial Intelligence-Based Crime Prevention Policy in Indonesia is the focus of in-depth analysis. This policy is explained as a strategic step by the government in responding to the dynamics of modern crime which is increasingly connected to technology. Analysis shows that clear and comprehensive regulations support the implementation of this policy. Appropriate regulation ensures that artificial intelligence technology is used ethically and in accordance with applicable legal principles, while respecting human rights and individual privacy. Investment in technological infrastructure also plays a crucial role in the success of this policy. Funds allocated for the development and maintenance of artificial intelligence systems become long-term investments that support the ability of law enforcement agencies to face increasingly complex crime challenges. Discussions regarding training and human resource development highlight the importance of the readiness of law enforcement personnel to operate this technology well. Comprehensive and ongoing training programs are key to ensuring that law enforcement officers can optimally utilize the potential of artificial intelligence technology.

Forms of criminal acts against the use of artificial intelligence technology (Artificial Intelligence)

In an era where technology is increasingly advanced, the use of artificial intelligence (Artificial Intelligence) has had a significant impact in various aspects of life, including in the fields of security and law. However, along with this progress, new challenges have emerged related to the misuse of this technology for criminal activities. Therefore, it is important to study and understand the forms of criminal acts related to the use of artificial intelligence technology. In this article, we will investigate several forms of criminal acts that have emerged along with the development of artificial intelligence technology. From fraud and cyberattacks to online harassment and market manipulation, we will explore the security threats that arise from leveraging artificial intelligence in the context of digital crime. A deep understanding of these forms of criminal acts will help us formulate effective response strategies, both from a policy and law enforcement perspective. In this way, we can together build a digital environment that is safer and more secure for the wider community. Remove the words in this article and replace them with findings.

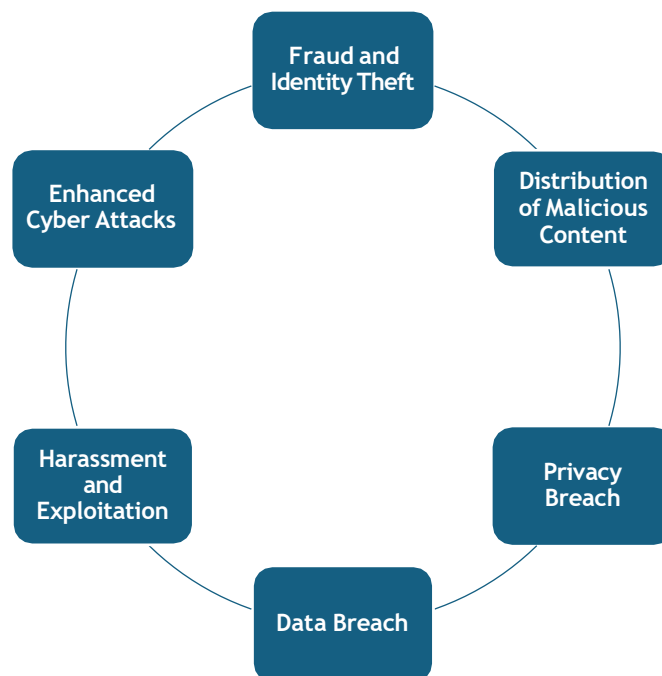
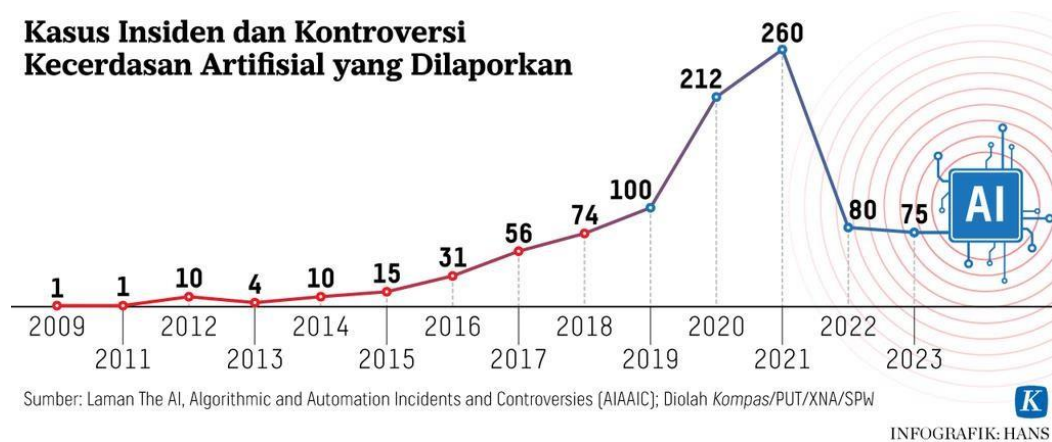


Figure 1. Forms of criminal acts involving the use of artificial intelligence technology

Source: processed by researchers 2024

Based on the picture above, it can be explained that fraud and identity theft are criminal acts regulated in Article 378 and Article 362 of the Indonesian Criminal Code (KUHP). The use of artificial intelligence algorithms to compose phishing messages or duplicate online profiles can be categorized as fraud under Article 378 of the Criminal Code. Likewise, creating a fake image that is difficult to distinguish from the original can be considered identity fraud as regulated in Article 362 of the Criminal Code. Cyber attacks enhanced using artificial intelligence can violate Article 30 and Article 46 of Law Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning

Information and Electronic Transactions (UU ITE), which prohibits actions that are detrimental to system security and availability. information. The spread of dangerous content, such as deepfakes, can violate Article 27 paragraph (3) of the ITE Law which prohibits the dissemination of information that poses a threat to national security and/or has the potential to cause widespread material or non-material losses in society. The breach of sensitive data is a violation of Article 30 of the ITE Law which prohibits unauthorized access to electronic systems protected by security systems. Violations of privacy through surveillance and monitoring with artificial intelligence technology can violate Article 21 of the ITE Law which regulates the protection of personal data. Organized criminal acts supported by artificial intelligence can violate Article 365 of the Criminal Code concerning aggravated theft, Article 365 bis of the Criminal Code concerning kidnapping which results in death, and Article 365 ter of the Criminal Code concerning kidnapping which results in loss of liberty. Meanwhile, according to data obtained from Kompas.id, the reported cases of artificial intelligence incidents and controversies are presented in graphical form as follows:



Graph 1. Reported cases of artificial intelligence incidents and controversies

Source: Kompas.id 2024

The graph shows that cases of incidents and controversies related to artificial intelligence (AI) reported in 2021 reached the highest number of 260, while the lowest number was recorded in 2009 with only one case. This phenomenon can be explained by various factors, including the impact of the COVID-19 pandemic. During the COVID-19 pandemic, there has been a significant increase in the use and development of AI technology for various purposes, such as health monitoring, drug research, data management, and online services. Although AI provides great benefits in dealing with pandemics, such as developing vaccines, monitoring the spread of viruses, and predicting epidemiological trends, it also raises several issues and controversies that can be the cause of the increasing number of incidents.

One of the reasons for the increase in AI-related incidents and controversies in 2021 is concerns about the use of AI technology in monitoring and tracking individuals during the pandemic. This creates debates about privacy and human rights, as the application of

AI for monitoring can threaten individual freedoms and raise concerns about potential misuse of data. In addition, the increased use of digital platforms and social media during the pandemic may also contribute to the increase in cases of AI-related incidents. The misuse of AI technology in the creation and distribution of false or provocative content on online platforms is a serious concern, especially in the context of the spread of misinformation about COVID-19.

Pandemic conditions can also accelerate the adoption of AI technology in various sectors, including cybersecurity. With cyber threats related to COVID-19 increasing, organizations and enterprises are likely to rely on artificial intelligence solutions to identify, prevent, and respond to cyber attacks. However, the use of this technology can also open new opportunities for cybercrime and increase the complexity of information security challenges. Thus, the increase in the number of incidents and controversies related to artificial intelligence in 2021 can be largely explained by the impact of the COVID-19 pandemic which accelerated the adoption of AI technology, but also gave rise to various new issues and challenges that need to be addressed effectively.

The concept of crime prevention based on artificial intelligence in Indonesia

In the context of advances in artificial intelligence (AI) technology, crime prevention is becoming increasingly complex in Indonesia. In response to these developments, the concept of artificial intelligence-based crime prevention is becoming increasingly important. Effective investigations and law enforcement require the integration of this technology in crime prevention strategies. Therefore, in this presentation, we will explain the future concept of dealing with artificial intelligence-based crime in Indonesia, as well as concrete policy steps that can be taken based on applicable articles or legal regulations and government policies.

1. Strengthening the Regulatory Framework:

Indonesia needs to strengthen the regulatory framework governing the use of artificial intelligence technology in fighting crime. This can be done through updating or creating relevant laws, such as the ITE Law, which provides a clear legal basis for the use of AI in law enforcement. Strengthening articles related to cybercrime, such as electronic fraud, spreading false information, or cyber attacks, is a priority.

2. Investment in Technology Infrastructure:

The government needs to allocate adequate resources for the development of artificial intelligence technology infrastructure in law enforcement agencies. This includes investment in the development of AI software and hardware, as well as training for law enforcement officers in the use of the technology. Assistance and cooperation with the private sector in this regard is also important.

3. Training and Human Resources Development:

Comprehensive training programs need to be developed to improve the skills and knowledge of law enforcement officers in utilizing artificial intelligence

technology. This training covers data collection and analysis, social media monitoring, and early detection of cyber threats. Ethical aspects in the use of AI also need to be emphasized in this training program.

4. Collaboration between Institutions and Stakeholders:

Cross-sector collaboration between government agencies, law enforcement agencies, educational institutions, the private sector and civil society must be strengthened. The exchange of information and resources, as well as the formation of strategic partnerships, can accelerate the development of innovative solutions in AI-based crime prevention.

5. Increased Public Awareness:

Increasing public awareness about the role and benefits of artificial intelligence technology in combating crime needs to be realized through outreach and education campaigns. Public education will help gain greater community support and build trust in the use of AI by law enforcement agencies.

By implementing these steps in a holistic and integrated manner, Indonesia can strengthen its capacity to face various increasingly complex criminal threats in the digital era. This is in line with the government's vision to create a safer and more secure society for all its citizens. Regarding the concept of crime prevention based on artificial intelligence (AI) in Indonesia, there are several legal norms that apply. These norms provide the legal basis governing the use of AI technology in the context of law enforcement and crime prevention. Following are some relevant legal norms:

1. Legal Principles

Article 27 paragraph (1) of the 1945 Constitution states that "all citizens have the same position under the law and government and are obliged to uphold the law and government without exception." This principle underscores the importance of upholding fairness, proportionality and individual freedom in the use of artificial intelligence in law enforcement.

2. Electronic Information and Transactions Law (UU ITE)

Article 28 paragraph (1) of the ITE Law states that "any person intentionally and without right distributes and/or transmits and/or makes accessible Electronic Information and/or Electronic Documents which contain insulting and/or defamatory content." This article regulates the spread of false information or defamation which can be punished in the context of law enforcement in cyberspace.

3. Personal Data Protection Law

Article 5 of Law Number 11 of 2020 concerning Electronic Information and Transactions (UU ITE) regulates the protection of personal data. This article sets out the principles for the collection, processing and storage of personal data that law enforcement agencies using artificial intelligence technology must comply with.

4. Consumer Protection Law

Article 14 of Law Number 8 of 1999 concerning Consumer Protection regulates that "providers of goods and/or services are prohibited from misleading regarding price, quality, type, shape, size, quality, use, benefits, and risks that may arise from the use of goods and/or services offered or traded." This article protects consumers from fraudulent practices in online transactions which can be identified and overcome using artificial intelligence.

5. Ethical Principles in the Use of AI:

Although there are no specific articles in the law that regulate ethical principles in the use of AI, these principles are often cited from commonly accepted ethical frameworks. This includes transparency (article 16 of the ITE Law), accountability and fairness in the use of artificial intelligence technology in law enforcement. By complying with and implementing these articles, it is hoped that the use of artificial intelligence technology in combating crime in Indonesia can be carried out by paying attention to the principles of justice, human rights and high ethical standards.

4. Conclusion

In the context of artificial intelligence-based crime prevention in Indonesia, the conclusion that can be drawn is the need to integrate artificial intelligence technology in a holistic and integrated law enforcement strategy. Appropriate policies and comprehensive regulations are an important foundation in ensuring that the implementation of AI technology is carried out ethically and in accordance with applicable legal principles, while still paying attention to human rights and individual privacy. Investments in technological infrastructure and human resource training are key to ensuring the successful use of artificial intelligence in crime prevention. Collaboration between institutions and stakeholders is also needed to strengthen capacity in facing increasingly complex crime challenges in the digital era. With increasing public awareness about the role and benefits of artificial intelligence technology, it is hoped that public support for the implementation of AI-based crime prevention policies will become stronger. In this way, Indonesia can build a safer and more secure digital environment for all its citizens, in line with the government's vision of creating a safer and more secure society.

References

- Appolonov, S. (2021). Application Of Artificial Intelegence In Machine Learning And Pet Adoption Prediction. *Студенческий Вестник*.
- Budiman, M. A. (2022). Penggunaan Agen Berbasis Intelijen Untuk Menangani Kejahatan Siber. *Journal of Innovation Research and Knowledge*.
- Dahlan, I. A., Ariateja, D., Arghanie, M. A., Versantariqh, M. A., & ... (2021). Sistem Deteksi Senjata Otomatis Menggunakan Deep Learning Berbasis CCTV Cerdas. *Jurnal Sistem*
-

- Djamzuri, M. I., & Mulyana, A. P. (2023). Fenomena Bullying Dalam Mendorong Kebijakan Literasi Berbasis AI (Artificial Intelligence) Pada Teknologi Media Baru. *Innovative: Journal Of Social Science*
- Effendy, A. A., Mustofa, M. A., Basuni, R. R., Nurjaya, N., & ... (2023). Determinants of Small medium Micro business empowerment: Systemic literature review. ... *Journal of Artificial*
- Ertel, W. (2018). *Introduction to artificial intelligence*. books.google.com.
- Fauzi, R., & Rahman, M. A. (2020). Artificial Intelligence Implementation Of Rough Set In Decision System Unemployments. *ZONasi: Jurnal Sistem Informasi*.
- Gandrova, S., & Banke, R. (2023). Penerapan Hukum Positif Indonesia Terhadap Kasus Kejahatan Dunia Maya Deepfake. *Madani: Jurnal*
- Hadinoto, N., & Azhar, A. R. (2018). New Development Strategy using Automatic Well Placement by Artificial Intelegent Application. *Jurnal IATMI*.
- Hamzani, A. I., Widyastuti, T. V, Sanusi, S., & ... (2020). Peningkatan kapasitas sumber daya manusia dengan pemahaman literasi hukum. ... *Berdaya Dan Inovasi*.
- Hariri, M. R., Ramli, A. M., & Ramli, T. S. (2023). Tinjauan Hukum Praktik Komersialisasi Lagu dan/atau Musik Melalui Non-Fungible Token (NFT) Oleh Para Musisi di Indonesia. *COMSERVA*.
- Hatidja, S., Abubakar, H., Hernita, H., Arimbawa, A. P., & ... (2022). *The Effect of Organizational Citizens' Behavior (OCB), Competence, and Organizational Culture on Performance: Employee Satisfaction as Mediating Variable*. repository.unibos.ac.id.
- Holzinger, A., Langs, G., Denk, H., & ... (2019). Causability and explainability of artificial intelligence in medicine. ... *Reviews: Data Mining*
<https://doi.org/10.1002/widm.1312>
- Jackson, P. C. (2019). *Introduction to artificial intelligence*. books.google.com.
- Kadim, A., & Sunardi, N. (2023). Financial management system (QRIS) based on UTAUT model approach in jabodetabek. *International Journal of Artificial Intelligence Research*.
- Kamar, K., Lewaherilla, N. C., Ausat, A. M. A., Ukar, K., & ... (2023). The Influence of Information Technology and Human Resource Management Capabilities on SMEs Performance. ... *Journal of Artificial*
- Kurniawan, I. (2023). Analisis Terhadap Artificial Intelligence Sebagai Subjek Hukum Pidana. *JIMI: Jurnal Ilmiah Multidisiplin Indonesia*.
- Lestari, M. A., Ramli, A. M., & Ramli, T. S. (2022). Telaah Yuridis Penyelenggaraan Teknologi 5g Di Indonesia: Langkah Transformasi Menuju Era Society 5.0. ... *Multidisiplin Indonesia*.
- Mariyam, S., & Setiyowati, S. (2021). Legality of Artificial Intelligence (AI) Technology in Public Service Transformation: Possibilities and Challenges. *Lex Publica*.
- Maulina, E., Purnomo, M., Wicaksono, A., & ... (2020). Analysis of the use of artificial intelligence technology on digital Startups in Indonesia. *International Journal of*
- Meirobie, I., Irawan, A. P., Sukmana, H. T., Lazirkha, D. P., & ... (2022). Framework Authentication e-document using Blockchain Technology on the Government system. ... *Journal of Artificial*
- Mintz, Y., & Brodie, R. (2019). Introduction to artificial intelligence in medicine. *Minimally Invasive Therapy \&Allied* <https://doi.org/10.1080/13645706.2019.1575882>

- Muhammad, A. W., Foozy, C. F. M., & Azhari, A. (2020). Machine Learning-Based Distributed Denial of Service Attack Detection on Intrusion Detection System Regarding to Feature Selection. *International Journal of Artificial ...*
- Multazam, M. T., & Widiarto, A. E. (2023). Digitalization of the Legal System: Opportunities and Challenges for Indonesia. *Rechtsidee*.
- Murdayantin, F. U., Agustin, A., & ... (2023). Moral dan Etika Notaris di Era Society 5.0: Kajian Fungsi Artificial Intelligence Terhadap Profesi Notaris. ... *Kontemporer Hukum*
- Noerman, C. T., & Agustanti, R. D. (2023). Pertanggungjawaban Artificial Intelligence Sebagai Subjek Hukum Yang Melakukan Tindak Pidana Korupsi. *Jurnal Hukum Samudra Keadilan*.
- Sakban, A., & Resmini, W. (2018). Kearifan Lokal (Sasambo) sebagai Pedoman Hidup Masyarakat Multikultural dalam Menghadapi Era Revolusi Industri 4.0 di Indonesia. *Prosiding Seminar Nasional*
- Salsabilla, S. A., Andiani, K., & Hosnah, A. U. (2023). Penegakan Hukum dalam Era Society 5.0: Cyber Espionage dalam Sorotan Hukum Nasional dan Internasional. *Kultura: Jurnal Ilmu Hukum*
- Santoso, G. (2022). Revolusi Pendidikan di era society 5.0; pembelajaran, tantangan, peluang, akses, dan keterampilan teknologi. *Jurnal Pendidikan Transformatif*.
- Simanjuntak, E. (2019). Peran Yurisprudensi dalam Sistem Hukum di Indonesia. *Jurnal Konstitusi*.
- Sirait, R. M., Ginting, R. F., & Ginting, C. D. B. (2023). Tantangan Hukum Penggunaan Data Biometrik Dalam Keperluan Bisnis. ... *Konseling Pendidikan Islam*.
- Winarno, E., Wijayanti, T. C., Hadikurniawati, W., & ... (2023). Educational Game Based Role Playing Games with Finite State Machine Method. ... *Journal of Artificial ...*