

Моя профессиональная  
карьера



**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER

**ISSN**  
2782-4365

Проверить  
номер:



Научно-образовательный электронный журнал

# ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ

Выпуск №59-4 (том 1)  
(февраль, 2025)



Проверить индексацию статьи. Сайт: [mpcareer.ru/google](http://mpcareer.ru/google)



Свидетельство  
о регистрации СМИ  
№ЭЛ ФС 77-77927  
от 19.02.2020 г.



**РОСКОМНАДЗОР**

Периодичность выпуска: 1 раз в неделю  
Сайт: [mpcareer.ru/oinv21veke](http://mpcareer.ru/oinv21veke). Почта: [obrmpcareer@mail.ru](mailto:obrmpcareer@mail.ru)



Международный научно-образовательный  
электронный журнал  
«ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ»

ISSN 2782-4365

УДК 37

ББК 94

**Международный научно-образовательный электронный журнал  
«ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ». Выпуск №59-4 (том 1) (февраль,  
2025). Дата выхода в свет: 03.03.2025.**

Сборник содержит научные статьи отечественных и зарубежных авторов по экономическим, техническим, философским, юридическим и другим наукам.

Миссия научно-образовательного электронного журнала «ОБРАЗОВАНИЕ И НАУКА В XXI ВЕКЕ» состоит в поддержке интереса читателей к оригинальным исследованиям и инновационным подходам в различных тематических направлениях, которые способствуют распространению лучшей отечественной и зарубежной практики в интернет пространстве.

Целевая аудитория журнала охватывает работников сферы образования (воспитателей, педагогов, учителей, руководителей кружков) и школьников, интересующихся вопросами, освещаемыми в журнале.

Материалы публикуются в авторской редакции. За соблюдение законов об интеллектуальной собственности и за содержание статей ответственность несут авторы статей. Мнение редакции может не совпадать с мнением авторов статей. При использовании и заимствовании материалов ссылка на издание обязательна.

© ООО «МОЯ ПРОФЕССИОНАЛЬНАЯ КАРЬЕРА»

© Коллектив авторов

## РЕДАКЦИОННАЯ КОЛЛЕГИЯ:

Пестерев С.В. – гл. редактор, отв. за выпуск

---

Абдурасулов Абдуллажон Абдукаримович	доктор философии педагогических наук
Азамов Жасурбек Муродович	доктор философии в области юриспруденции
Артикова Мухайохон Ботиралиевна	доктор педагогических наук, доцент
Ахмедов Ботиржон Равшанович	доктор философии в филолог. науках (PhD), доцент
Батулин Сергей Петрович	кандидат исторических наук, доцент
Бекжанова Айнура Мархабаевна	доктор философии по педагог. наукам (PhD), доцент
Бекжанова Гулнара Маркабаевна	кандидат медицинских наук, преподаватель
Боброва Людмила Владимировна	кандидат технических наук, доцент
Богданова Татьяна Владимировна	кандидат филологических наук, доцент
Ботиров Аминжон Розимбоевич	кандидат биологических наук, доцент
Демьянова Людмила Михайловна	кандидат медицинских наук, доцент
Еремеева Людмила Эмировна	кандидат технических наук, доцент
Жуманова Фатима Ураловна	кандидат педагогических наук, доцент
Засядько Константин Иванович	доктор медицинских наук, профессор
Исломова Саидахон Тургуновна	доктор философии по техническим наукам (PhD), доцент
Кабулова Мехрибан Толыбаевна	доктор философии по педагог. наукам (PhD)
Казакова Раъно Машрабаевна	доктор философии по филологическим наукам (PhD)
Кодиров Хасанбой Орибжонович	доктор философии педагогических наук
Колесников Олег Михайлович	кандидат физико-математических наук, доцент
Коробейникова Екатерина Викторовна	кандидат экономических наук, доцент
Ланцева Татьяна Георгиевна	кандидат экономических наук, доцент
Мухамедова Лола Джураевна	доктор философии по филологическим наукам (PhD)
Нарзикулова Фируза Ботировна	доктор психологических наук
Нобель Артем Робертович	кандидат юридических наук, доцент
Ноздрин Наталья Александровна	кандидат педагогических наук, доцент
Нуржанов Сабит Узакбаевич	доктор историч. наук (dsc), старший научный сотрудник
Олтаев Шавкат Собирович	кандидат экономических наук, доцент
Павлов Евгений Владимирович	кандидат исторических наук, доцент
Петрова Юлия Валентиновна	кандидат биологических наук, доцент
Попов Сергей Викторович	доктор юридических наук, профессор
Расулходжаева Мадина Ахмаджоновна	доктор философии по педагог. наукам (PhD), доцент

Рахматова Фотима Ганиевна	доктор философии по педагог. наукам (PhD), доцент
Рахмонов Азизхон Боситхонови	доктор педагогических наук, доцент
Таспанова Айзада Кенжебаевна	доктор философии (PhD) по экономическим наукам
Таспанова Жыгагул Кенжебаевна	доктор философии по педагог. наукам (PhD), доцент
Табашникова Ольга Львовна	кандидат экономических наук, доцент
Тўрабоева Мадинахон Рахмонжон қизи	кандидат педагогических наук, доцент
Тюрин Александр Николаевич	кандидат географических наук, доцент
Уразова Лариса Карамовна	кандидат исторических наук, доцент
Усубалиева Айнура Абдыжапаровна	кандидат социологических наук, доцент
Утегенова Жамила Джолмурзаевна	доктор философии по эконом. наукам, доцент
Фаттахова Ольга Михайловна	кандидат технических наук, доцент
Ширинов Отабек Тувалович	доктор психологических наук (PhD)
Хамдамова Ситора Сафаровна	Доктор философии в области философских наук, доцент
Ханбабаев Хакимжан Икрамович	доктор педагогических наук (DSc)
Худайкулов Хол Джумаевич	доктор педагогических наук, профессор
Худойбердиева Хурият Каримбердиевна	доктор философии (PhD) в социальной философии
Ширинов Отабек Тувалович	доктор психологических наук (PhD)
Эшназаров Журакул	кандидат педагогических наук, профессор
Эшназарова Фарида Журакуловна	доктор философии по философии (PhD)
Юнусова Бахора Ахтамжоновна	кандидат филологических наук, ассистент
Яхяева Сожида Абдурахимовна	доктор философии (PhD) в социальной философии

Galandarova Aysoltan, Porrykov Dowletmyrat METHODS OF TEACHING MEDICAL BIOTECHNOLOGY	291
Agajan Myradov STATE SOVEREIGNTY IN INTERNATIONAL LAW: EVOLUTION, CHALLENGES, AND FUTURE PROSPECTS	296
Durdyyeva Enejan Geldimyradovna, Bayriyeva Selbinyaz TEACHING THE LANGUAGE OF LITERACY	301
Agayeva Suray, Annayeva Ayna THE METHODOLOGY OF TEACHING ENGLISH LANGUAGE TO CHILDREN IN PRESCHOOL	304
Ahmetyar Yusupov THE CONCEPT OF SOVEREIGNTY IN INTERNATIONAL LAW: FOUNDATIONS, IMPLICATIONS, AND CONTEMPORARY CHALLENGES	309
Mommadov Hudaynazar, Kurambayev Yoldashbay MOBILE APPLICATION FOR TEACHING ENGINEERING GRAPHICS	314
Berdiyeva Gulshat, Yazdurdyyeva Mahym THE ROLE OF MATHEMATICAL GAMES IN DEVELOPING PUPILS' LOGICAL THINKING	317
Arslan Hudayberdiyev INTERNATIONAL ORGANIZATIONS AS SUBJECTS OF INTERNATIONAL LAW	322
Suhanov Seyrangeldi, Seyitmyradov Begench THE FRANCHISING MODEL IN THE NEW ECONOMIC REALITY	327
Gayypova Shirinay, Saparova Seyyara THE PARTICULARITIES OF GUIDING STUDENTS TOWARDS A VOCATION	331
Muhammetnazar Shaliyev THE PRINCIPLE OF STATE RESPONSIBILITY IN INTERNATIONAL LAW	335
Ashyrow Ashyr, Orazdurdyyeva Gulshat AI TECHNOLOGIES IN CYBERSECURITY	340
Hommadova Bagul, Porrykov Dowletmyrat METHODOLOGY OF TEACHING CELL AND TISSUE ENGINEERING	344
Gozel Gutlyyeva PEOPLES FIGHTING FOR SELF-DETERMINATION AS SUBJECTS OF INTERNATIONAL LAW	349
Bayramova Bagul, Orazdurdyyeva Gulshat SECURITY OF WEB APPLICATIONS	354

**ФИО автора(-ов):** *Ashyrow Ashyr, student.*

*Orazdurdyeva Gulshat, teacher.*

Oguzhan Engineering and Technology University of Turkmenistan.

Ashgabat, Turkmenistan

**Название публикации:** «AI TECHNOLOGIES IN CYBERSECURITY»

**Abstract:** As the frequency, sophistication, and scale of cyber threats continue to grow, the need for more advanced security solutions becomes increasingly critical. Traditional cybersecurity measures, such as firewalls and antivirus software, are struggling to keep pace with modern cyber threats. In this context, Artificial Intelligence (AI) and machine learning (ML) technologies are emerging as transformative tools in enhancing cybersecurity systems. This paper explores how AI is being leveraged to identify, predict, and mitigate cyber threats in real-time. It examines various AI-based techniques such as anomaly detection, intrusion detection systems (IDS), and automated threat response. The research highlights the applications of AI in threat intelligence, malware analysis, and risk management, as well as the challenges and limitations associated with implementing AI technologies in cybersecurity. By reviewing current literature, case studies, and industry examples, this paper aims to provide an understanding of how AI is reshaping the landscape of cybersecurity and offer insights into its future potential in combating evolving cyber threats.

**Keywords:** Artificial Intelligence (AI), Cybersecurity, Machine learning (ML), Threat detection, Intrusion detection systems (IDS), Malware analysis, Automated threat response.

### **1. Introduction:**

The digital age has transformed the way businesses and individuals interact with technology, creating vast opportunities but also introducing new security risks. Cyberattacks, ranging from data breaches to ransomware attacks, have become prevalent, and their impact is more disruptive than ever. Traditional cybersecurity

methods, while effective in some cases, are often insufficient in addressing the increasingly sophisticated techniques used by cybercriminals.

Artificial Intelligence (AI) technologies, particularly machine learning (ML), are revolutionizing the field of cybersecurity by providing new ways to detect, analyze, and respond to cyber threats in real time. AI-powered systems are capable of learning from vast amounts of data, enabling them to identify patterns, predict threats, and automate responses to mitigate risks. This paper discusses the role of AI in enhancing cybersecurity defenses and the various ways AI is being integrated into cybersecurity systems to address the challenges of modern-day cyber threats.

## **2. Background and Literature Review:**

Cybersecurity has always been a critical concern for organizations worldwide, with security professionals relying on conventional methods such as firewalls, encryption, and antivirus software. However, these tools are becoming less effective against sophisticated, evolving cyber threats. In response, researchers have turned to Artificial Intelligence and machine learning to develop smarter, adaptive security systems.

AI technologies such as anomaly detection, deep learning, and natural language processing (NLP) have shown great promise in the realm of cybersecurity. According to a study by Zhang et al. (2020), AI-based systems are particularly adept at detecting anomalies in network traffic that may signify a cyberattack. Additionally, AI can improve response times and reduce human error by automating various aspects of threat detection and incident response (Goh et al., 2021).

Recent advances in AI have also facilitated more accurate malware analysis, enabling systems to detect new and previously unknown malware variants based on their behavior rather than relying on traditional signature-based detection methods (Raff et al., 2017). Furthermore, AI is being increasingly used in predictive threat modeling, where algorithms analyze patterns and data to predict future cyberattacks.

## **3. Methodology:**

This paper takes a qualitative approach, focusing on the integration of AI technologies in cybersecurity through a review of existing literature, case studies, and

industry reports. It explores the practical applications of AI in cybersecurity, with particular emphasis on the following areas:

1. **Threat Detection and Prevention:** AI algorithms capable of identifying threats based on unusual patterns or behaviors within network traffic.
2. **Intrusion Detection Systems (IDS):** Machine learning techniques used to enhance IDS by automatically learning from new attack vectors.
3. **Malware Analysis:** AI-driven systems that identify new malware through behavioral analysis rather than relying solely on signatures.
4. **Automated Threat Response:** The use of AI to automate the response to detected threats, reducing the time and cost associated with manual interventions.

Additionally, the paper analyzes the challenges involved in deploying AI-based systems in cybersecurity, such as the need for large, high-quality datasets, the risk of adversarial attacks on AI models, and the integration of AI systems into existing security frameworks.

#### **4. Results and Discussion:**

Several key findings emerge from the research:

1. **AI for Threat Detection:** Machine learning algorithms, especially unsupervised learning models, are capable of detecting anomalies in large datasets, making them particularly effective at identifying new, unknown cyberattacks. This approach significantly reduces the need for predefined threat signatures, which are often outdated and ineffective against emerging threats (Zhang et al., 2020).
2. **Intrusion Detection Systems (IDS):** Traditional IDS often rely on predefined attack patterns, but AI-enhanced IDS can adapt to new and unknown types of intrusions by continuously learning from network behavior and attack patterns. Deep learning models, such as convolutional neural networks (CNNs), have shown promise in detecting advanced persistent threats (APTs) in real-time (Goh et al., 2021).
3. **Malware Analysis:** AI technologies, particularly deep learning, have improved the detection and classification of new malware variants. Instead of relying on static signatures, AI systems analyze malware behavior and classify it based on similarity to known attack patterns. This capability allows for quicker identification

and mitigation of new malware attacks, which is especially important in environments where malware is constantly evolving (Raff et al., 2017).

4. **Automated Threat Response:** AI can be used to automate responses to detected threats, such as isolating infected systems, blocking malicious IP addresses, or initiating predefined containment procedures. This automation reduces response time and human error, ensuring that threats are mitigated as quickly as possible.

However, challenges remain in implementing AI systems, including the potential for adversarial attacks that manipulate AI models, the need for large and diverse training datasets, and the complexity of integrating AI into legacy security infrastructures.

### **5. Conclusion:**

AI technologies have the potential to revolutionize cybersecurity by enabling smarter, more adaptive security systems that can detect, analyze, and respond to threats faster and more accurately than traditional methods. The ability of AI to process vast amounts of data and identify emerging threats in real-time provides a significant advantage in the fight against cybercrime. However, the integration of AI into cybersecurity is not without its challenges, including the need for robust training data, the risk of adversarial manipulation, and the complexity of integrating AI into existing systems. Despite these challenges, AI continues to show promise in strengthening cybersecurity defenses and addressing the increasingly sophisticated nature of modern cyber threats.

### **References**

1. Goh, G. G. G., Lee, J., & Teo, H. (2021). Artificial Intelligence in Cybersecurity: Threat Detection and Mitigation Techniques. *Journal of Cybersecurity*, 13(2), 65-75.

© Ashyrow Ashyr, Orazdurdyeva Gulshat. 2025