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THE METHODOLOGY FOR IMPLEMENTING INNOVATIVE TECHNOLOGIES IN SPORTS

Annotation: The article examines modern approaches to the integration of technologies in the sports sector. Special attention is given to the use of artificial intelligence (AI) for match analysis and training processes. The capabilities of AI in data processing, evaluating athletes' performance metrics, and developing strategies are described. The role of virtual reality (VR) as a tool for enhancing the efficiency of athlete preparation, improving technical and tactical skills, as well as for psychological adaptation to various game scenarios, is also explored. In conclusion, the prospects for further technological advancements in sports and their impact on outcomes are discussed.

Key words: Sports technologies, artificial intelligence, match analysis, training process, data processing, performance metrics, strategies, virtual reality, athlete preparation, technical skills, tactical skills, psychological adaptation, game scenarios, technological development, sports outcomes.

Аннотация: В статье рассматриваются современные подходы к внедрению технологий в спортивную сферу. Особое внимание уделяется использованию искусственного интеллекта (ИИ) для анализа матчей и тренировочного процесса. Описаны возможности искусственного интеллекта (ИИ) в обработке данных, оценке показателей производительности спортсменов и разработке стратегий. Также рассматривается роль виртуальной реальности (VR) как инструмента для повышения эффективности подготовки спортсменов, улучшения их технических и тактических навыков, а также для психологической адаптации к различным игровым сценариям. В заключение обсуждаются перспективы дальнейшего развития технологий в спорте и их влияние на результаты.

Ключевые слова: Технологии в спорте, искусственный интеллект, анализ матчей, тренировочный процесс, обработка данных, показатели производительности, стратегии, виртуальная реальность, подготовка спортсменов, технические навыки, тактические навыки, психологическая адаптация, игровые сценарии, развитие технологий, спортивные результаты

Annotatsiya: Maqolada sport sohasiga texnologiyalarni integratsiya qilishning zamonaviy usullari o'rganilgan. Ayniqsa, sun'iy intellekt (AI)ning o'yinlarni tahlil qilish va mashg'ulot jarayonlarida qo'llanilishiga alohida e'tibor qaratilgan. AIning ma'lumotlarni qayta ishlash, sportchilarning ishlash ko'rsatkichlarini baholash va strategiyalar ishlab chiqishdagi imkoniyatlari tasvirlangan. Virtual reallik (VR) texnologiyasining sportchilarni tayyorlash samaradorligini oshirish, texnik va taktik ko'nikmalarni takomillashtirish hamda o'yin ssenariylariga psixologik moslashish vositasi sifatidagi roli ham ko'rib chiqilgan. Xulosa qilib, sportdagi texnologiyalarning yanada rivojlanishi istiqbollari va ularning natijalarga ta'siri muhokama qilingan.

Kalit so'zlar: Sport texnologiyalari, sun'iy intellekt, o'yinlarni tahlil qilish, mashg'ulot jarayoni, ma'lumotlarni qayta ishlash, ishlash ko'rsatkichlari, strategiyalar, virtual reallik, sportchilarni tayyorlash, texnik ko'nikmalar, taktik ko'nikmalar, psixologik moslashuv, o'yin ssenariylari, texnologik rivojlanish, sport natijalari.

Methodology for the introduction of innovative technologies in sports

Modern sports are developing in an increasingly competitive environment, and one of the key strategies for improving results is the integration of high technologies. Artificial intelligence (AI) and virtual reality (VR) play a special role in this process, opening up new opportunities for analyzing, training and improving the skills of athletes.

Artificial intelligence in sports

Artificial intelligence is central to the data processing and analysis process. Its use allows you to improve many aspects of sports activities:

1. Match Analysis AI-based systems are used to analyze game situations in real time. For example, machine learning algorithms process data on player movement, tactical team realignments, and strategy effectiveness. This helps coaches to make more informed decisions both during the match and during the preparation stage.[1]

2. Physical fitness assessment and injury prevention

Sensors and wearable devices capture biometric data of athletes, such as heart rate, fatigue level and joint movement. AI algorithms process this data, detecting early signs of overload or injury, which minimizes risks and optimizes training.

3. Strategy development

 Based on a large amount of data about previous games and rivals, AI helps to develop optimal tactical schemes and predict the behavior of the opponent

Virtual reality in the training of athletes

Virtual reality is becoming a powerful tool in the training process due to the ability to simulate game scenarios and increase the psychological stability of athletes.

1. Technical and tactical training

VR technologies allow you to recreate realistic game situations in which athletes can practice their actions without physical exertion. For example, football players can train corner kicks or positional play, and hockey players can train goal defense in conditions of high simulation accuracy.

2. Psychological adaptation

With the help of VR glasses, you can reproduce stressful situations, such as decisive moments of a match or pressure from the stands. This helps athletes better adapt to real conditions and reduce anxiety levels.

3. Rehabilitation

To recover from injuries, VR is used as a means for gradual adaptation to training and imitation of game actions, which contributes to the athlete's early return to active activity.[2]

Prospects for the introduction of technologies

The introduction of AI and VR into sports not only improves results, but also transforms the approach to training athletes and team management.

In the future, we can expect:

• Enhance the personalization of training programs through more accurate

AI algorithms.

• Expanding the use of VR for the training of judges and arbitrators, allowing them to analyze controversial issues in a virtual environment.

• Integration of augmented reality (AR) technologies for training in mixed environments.

In the future, as artificial intelligence and virtual reality continue to develop, we can expect even deeper integration of these technologies into the sports process. For example, AI can become an important tool for predicting long-term trends in each player's sports career, which will allow them to more accurately plan their professional path and prevent injury risks. Virtual reality, in turn, can find new forms of application not only in the training of athletes, but also in the training of coaches and analysts, providing them with unique opportunities to practice in simulated situations. In addition, with the development of technology, sports clubs can begin to use biometric data and AI to create individual training programs adapted to the physiology of each athlete. This will lead to an increase in the overall effectiveness of training and improve athletic performance. Ultimately, technologies such as AI, VR and AR will play a key role in transforming the sports industry, making it more technologically advanced, personalized and focused on achieving maximum results.[3]

The introduction of artificial intelligence and virtual reality opens up new opportunities not only at the global level, but also in the sports industry of Uzbekistan. In recent years, the country has been actively developing sports, which is evident from the success of Uzbek athletes in the international arena. However, the integration of modern technologies can be a significant step forward to increase competitiveness at the global level. In Uzbekistan, it is used to analyze training processes in such popular sports as football, boxing and wrestling. For example, the development of local programs based on machine learning will allow coaches to analyze athletes' performances in more detail and develop strategies that take into account individual characteristics. In addition, the use of AI in sports medicine can help in injury prevention and faster recovery of athletes.[4]

To successfully implement these technologies, it is necessary to develop cooperation with international technology companies and invest in educational programs for coaches and sports analytics specialists. The creation of innovative sports centers equipped with AI and VR will attract the attention of young talents and strengthen the country's position on the world sports arena. Thus, the integration of AI and VR can become an important factor in the modernization of the sports industry in Uzbekistan, contributing both to the development of individual athletes and to raising the national level of sports.[5]

The introduction of high technologies into sports in Uzbekistan receives an additional impetus thanks to such normative acts as the Decree of the President of the Republic of Uzbekistan Sh.M.Mirziyoyev No.UP-6099 dated October 24, 2020.[6] This document was an important step in the development of sports infrastructure, mass sports and the training system for professional athletes. Based on this decree, the direction related to the use of artificial intelligence and virtual reality is developing. Eg:

1. Digitalization of sports analytics
2. Creation of innovative sports centers
3. Training of specialists in the field of sports technology
 4.Support for talented youth Thus, the decree of the President of Uzbekistan Sh.M.Mirziyoyev creates a solid foundation for the introduction of modern technologies in the sports industry. The use of AI and VR will allow Uzbekistan not only to improve the level of training of athletes, but also to strengthen its position in the international sports community.

In conclusion, it can be noted that artificial intelligence and virtual reality technologies open up new horizons for the sports industry. Their implementation is already yielding tangible results, and further development promises significant changes in training methods, improving the safety of athletes and increasing the entertainment of sports events. In order to fully exploit the potential of these technologies, it is necessary to adapt them to the peculiarities of various sports, as well as provide high-quality training for coaches and specialists who are able to effectively apply innovative solutions.

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