

UDC 008

Possibilities of artificial intelligence technology when choosing new artistic forms in landscape design

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Abstract

The article shows that artificial intelligence technologies can be used in landscape design to create more accurate and effective landscaping plans. For example, machine learning algorithms can help analyze climate, soil and plant data to optimize plant selection and create sustainable landscapes. Also, artificial intelligence technologies can be used to visualize designs, which will help clients better understand the concepts proposed by the designer. In addition, artificial intelligence can be used to analyze large amounts of data about topography, climate, hydrology and other factors, allowing landscape designers to create more accurate and sustainable designs. Such technologies can also help optimize the use of resources, taking into account environmental and energy aspects. The use of artificial intelligence in landscaping can also help with project management, process automation, and increased operational efficiency. For example, automating the process of creating drawings, calculations and planning can significantly reduce the time it takes to develop projects. Thus, artificial intelligence technologies have great potential to improve the quality and efficiency of landscape design, as well as to create more sustainable and environmentally friendly landscapes.

For citation

Elagina A.S., Smirnova O.O. (2023) Vozmozhnosti tekhnologii iskusstvennogo intellekta pri vybore novykh khudozhestvennykh form v landshaftnom dizaine [Possibilities of artificial intelligence technology when choosing new artistic forms in landscape design]. *Yazyk. Slovesnost'. Kul'tura* [Language. Philology. Culture], 13 (6), pp. 7-12.

Keywords

Landscape design, environmental design, AI technologies, architectural elements, art forms.

Introduction

In its most general sense, landscape design is the process of planning and creating unique and functional landscapes that combine beauty, usability, and resilience to environmental changes. Landscape designers consider various aspects such as climate, soil conditions, topography, architectural elements and human needs to create attractive and functional spaces. The purpose of landscape design is not only to improve the appearance of the area, but also to improve the quality of life of people, as well as to preserve natural resources and biodiversity.

Landscape design and environmental design have similar goals – creating attractive and functional spaces that take into account the needs of people and preserve the environment. However, there are several differences between them.

Landscape design focuses on planning and creating landscapes, which can be either natural or man-made. Landscape designers take into account natural conditions such as climate, soil characteristics, and topography to create attractive and functional spaces. Environmental design, on the other hand, covers a wider range of activities, including planning urban spaces, designing recreational areas, creating environmentally sustainable urban landscapes, etc. Environmental design also takes into account social and environmental aspects, such as the sustainable use of natural resources, creating a safe and comfortable environment for people and preserving biodiversity.

Consequently, landscape design is more specialized in creating attractive landscapes, while environmental design covers a wider range of activities related to the planning and creation of sustainable and comfortable urban spaces.

Key landscape design trends include sustainability and environmental compatibility, use of native plants and materials, creating functional and aesthetically pleasing spaces, and consideration of people's needs and preservation of the natural environment. Also important are innovative approaches to the use of technologies and materials, as well as taking into account changing climate conditions and environmental challenges. In general, the main trend in landscape design is the desire to create sustainable, functional and attractive landscapes that contribute to the well-being of people and the preservation of the environment; in this regard, the search for new artistic forms and technological solutions for their design is becoming increasingly relevant.

Main content

The directions of development of artistic forms in landscape design in the broadest cultural context were primarily associated with the creative activity of a designer. The transformation process was primarily associated with the most significant trends or styles. However, at the same time, the artist was influenced by his or her accumulated experience. That is, everything that influenced his or her views, the experience of previous generations left a significant impact. In the case where the artist could go beyond artistic ideas and focus on hidden possibilities when designing landscape design, “cult” objects were created that became symbols of the time. Such items include, for example, an egg chair, the creation of which was based on the need for personal space and isolation from others. At the same time, the consumer, in fact, in the process of creating an interior, could only indirectly influence this process; his or her opinions and needs were not studied from a scientific point of view. The development of technologies for collecting and processing big data (artificial intelligence technologies) allows us to change the very paradigm of the creative process.

Thus, by studying the impact of various artistic forms and elements on the consumer, it is possible to identify those that most meet the ideas of an aesthetic and functional interior. Data collection can be carried out on the basis of many hundreds of indicators, behavioral assessments, and relationships with the environment. At the same time, these assessments make it possible to identify both individual characteristics and the totality of tastes of individual consumers.

In modern marketing, similar tools have already been introduced to study consumer behavior in virtually all large companies; manufacturers study consumer behavior on websites, formulate individual offers and provoke new, sometimes thoughtless purchases. Global information systems explore stable relationships and patterns based on a set of data about each consumer. However, these tools are not used to support creative decisions in any area of industrial design. The process of transforming trends in landscape design actually has no “feedback”. As a result, the consumer does not actually have the opportunity to choose what meets his or her aesthetic and utilitarian needs and is often not aware of them. Meanwhile, the development of modern materials for the production of interior items can provide the widest opportunities for the implementation of creative ideas. Thus, a situation is created in which there are possibilities for transforming the very approach to the creative process, introducing its results in mass and serial production, but they are not used.

To resolve this contradiction, it is necessary to borrow the principles and tools of collecting big data based on consumer behavior to form a tool for identifying consumer needs, on the other hand, searching for stable interdependencies to identify sustainable trends outside the framework of the “hermeneutic ring” of the impact of previous experience.

In this regard, it is necessary to develop an information system for collecting and analyzing big data, which, according to the authors, should consist of the following modules for collecting and processing data.

At the same time, data collection should include the following indicators:

- information about the consumer (gender, age, socio-economic status);
- data on consumer behavior, generated as a result of observation;
- data on aesthetic preferences;
- data on his or her needs in relation to the environment.

The data analysis module should provide the following features:

- identification of stable interdependencies between indicators;
- identification of hidden needs that can be realized through the formation of the environment.

In this case, the most controversial issue is whether it is possible to divide consumers into groups based on a significant amount of data. Thus, according to the most general ideas in this area, the boundaries between groups will be fuzzy, and the needs and tastes of consumers will be individual. However, the experience of marketing research shows that this is not entirely true. The traditional idea of what factors determine the aesthetic and functional perception of landscape design is not entirely correct. Often indicators that are not traditionally included in identifying consumer groups are more significant than gender, age or income.

Conclusion

Therefore, artificial intelligence technologies can be used in landscape design to create more accurate and efficient landscaping plans. For example, machine learning algorithms can help analyze climate, soil and plant data to optimize plant selection and create sustainable landscapes. Also, artificial

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intelligence technologies can be used to visualize designs, which will help clients better understand the concepts proposed by the designer. In addition, artificial intelligence can be used to analyze large amounts of data about topography, climate, hydrology and other factors, allowing landscape designers to create more accurate and sustainable designs. Such technologies can also help optimize the use of resources, taking into account environmental and energy aspects.

The use of artificial intelligence in landscaping can also help with project management, process automation, and increased operational efficiency. For example, automating the process of creating drawings, calculations and planning can significantly reduce the time it takes to develop projects.

Thus, artificial intelligence technologies have great potential to improve the quality and efficiency of landscape design, as well as to create more sustainable and environmentally friendly landscapes.

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Возможности технологии искусственного интеллекта при выборе новых художественных форм в ландшафтном дизайне

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Аннотация

В статье показано, что технологии искусственного интеллекта могут быть использованы в ландшафтном дизайне для создания более точных и эффективных планов благоустройства. Например, алгоритмы машинного обучения могут помочь анализировать данные о климате, почве и растениях, чтобы оптимизировать выбор растений и создать устойчивые ландшафты. Также технологии искусственного интеллекта могут использоваться для визуализации проектов, что поможет клиентам лучше понять предлагаемые дизайнером концепции. Кроме того, искусственный интеллект может быть использован для анализа больших объемов данных о топографии, климате, гидрологии и других факторах, что позволит ландшафтными дизайнерам создавать более точные и устойчивые проекты. Такие технологии также могут помочь оптимизировать использование ресурсов, учитывая экологические и энергетические аспекты. Использование искусственного интеллекта в ландшафтном дизайне также может помочь в управлении проектами, автоматизации процессов и повышении эффективности работы. Например, автоматизация процесса создания чертежей, расчетов и планирования может значительно сократить время на разработку проектов. Таким образом, технологии искусственного интеллекта имеют большой потенциал для улучшения качества и эффективности ландшафтного дизайна, а также для создания более устойчивых и экологически чистых ландшафтов.

Для цитирования в научных исследованиях

Елагина А.С., Смирнова О.О. Возможности технологии искусственного интеллекта при выборе новых художественных форм в ландшафтном дизайне // Язык. Словесность. Культура. 2023. Том 13. № 6. С. 7-12.

Ключевые слова

Ландшафтный дизайн, средовый дизайн, технологии ИИ, архитектурные элементы, художественные формы.

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