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INTERACTION BETWEEN HUMAN CREATIVE THINKING AND ARTIFICIAL INTELLIGENCE ALGORITHMS

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Abstract

The article examines the problem of interaction between human creative thinking and artificial intelligence algorithms in the context of the digital transformation of contemporary culture and science. It considers the features of integrating intelligent technologies into creative and cognitive processes, as well as their influence on the nature of artistic and intellectual production. The synergistic potential of collaboration between humans and artificial intelligence is analyzed, and the methodological and cognitive aspects of this interaction are revealed. The paper substantiates the thesis that artificial intelligence does not replace human creativity but serves as a tool for its expansion, contributing to the emergence of new forms of thinking, creativity, and innovative activity.

Keywords: *creative thinking, artificial intelligence, algorithms, digital technologies, human–machine interaction, creativity, innovation, cognitive processes, synergy*

In the context of the rapid development of digital technologies and the global informatization of society, the problem of interaction between human creative thinking and artificial intelligence algorithms acquires particular scientific and practical significance. The current stage of scientific and technological progress is characterized by the active implementation of intelligent algorithms in various spheres of human activity – from industry and medicine to education, science, and art. This circumstance necessitates a reconsideration of traditional views on the nature of creativity, the role of the subject in the process of generating new ideas, and the boundaries of machine intelligence (Manovich L., 2018).

Human creative thinking has historically been regarded as a unique ability based on imagination, intuition, emotional experience, and individual perception of the world. It is formed under the influence of cultural, social, and personal factors and manifests itself in the capacity to create fundamentally new images, meanings, and concepts. Unlike algorithmic thinking, human creativity does not strictly

follow formalized rules and often has a nonlinear, heuristic character (Baudrillard J., 2018).

Artificial intelligence, in turn, represents a set of methods and algorithms aimed at modeling certain aspects of human intellectual activity. Modern AI systems based on machine learning, neural networks, and big data analysis are capable of processing enormous volumes of information, identifying hidden patterns, and generating new data combinations. These capabilities make it possible to use AI not only for solving strictly formalized tasks but also in areas traditionally associated with creative activity (Russell S., Norvig P., 2021).

In recent years, there has been active development of generative algorithms used in art, design, music, literature, and cinematography. Such systems are capable of creating visual images, musical compositions, and textual structures that, in their formal characteristics, may approach the results of human creativity. However, despite external similarities, the fundamental difference between human and machine creativity lies in the absence in artificial intelligence of subjective experience, emotional motivation, and a value-based attitude toward the created product (McCormack J., d'Inverno M. 2019).

The interaction between humans and artificial intelligence in creative activity should be viewed not as a process of substitution of one by the other, but as a form of synergistic collaboration. AI algorithms act as intellectual tools that expand human cognitive capabilities, accelerate the process of idea generation, and provide new means of artistic expression. Humans, in turn, retain the function of meaning-making, evaluation, and interpretation of results obtained through machine systems (Boden M. A., 2018).

This issue becomes especially relevant in the context of modern education and scientific research. The use of intelligent algorithms in the educational process contributes to the development of analytical thinking, the formation of digital competencies, and the expansion of students' creative potential. At the same time, there arises a need to cultivate a critical attitude toward the results produced by artificial intelligence, as well as an understanding of its limitations and ethical aspects of application (Mayer R. E., 2020).

From a philosophical perspective, the interaction between human creative thinking and artificial intelligence raises questions about the nature of consciousness, the limits of cognition, and the status of machine intelligence in culture. A number of researchers emphasize that creativity cannot be reduced to the generation of new data combinations but presupposes intentionality, conscious design, and personal meaning. In this context, artificial intelligence is regarded as an auxiliary mechanism capable of imitating certain elements of the creative process but not possessing full creative subjectivity (Floridi, L., 2016).

At the same time, practical experience in the use of AI in artistic and scientific activity demonstrates that interaction between humans and algorithms contributes to the emergence of new forms of creativity and hybrid artistic practices. Digital art, interactive installations, generative design, and multimedia projects become examples of the successful integration of human intention and machine computation. In such projects, artificial intelligence performs the role of co-author, technical mediator, or experimental environment for the realization of creative ideas (Wells P., 2018).

No less significant is the influence of artificial intelligence on the processes of scientific creativity. Machine learning algorithms are used for analyzing scientific data, modeling complex systems, and forecasting research results. This allows researchers to concentrate on the formulation of hypotheses and interpretation of the obtained data, while routine analytical operations are performed by automated systems (Domingos P., 2018).

Issues of ethics and responsibility occupy a special place in the discourse on human–artificial intelligence interaction. The use of AI in creative activity generates problems of authorship, intellectual property, and the evaluation of the originality of created products. In addition, there is a risk of losing individuality and standardizing creative practices due to excessive dependence on algorithmic solutions. In this regard, the scientific community increasingly emphasizes the need to develop regulatory and ethical principles for the application of artificial intelligence in the sphere of culture and education (Floridi L., Cowls J., 2019).

Thus, the interaction between human creative thinking and artificial intelligence algorithms represents a complex and multifaceted process reflecting the key trends in the development of modern civilization. Artificial intelligence does not abolish or replace human creativity but transforms its forms and expands the boundaries of the possible. Under conditions of harmonious and conscious use of intelligent technologies, new prospects open for the development of science, art, and education, based on the principles of collaboration, responsibility, and cultural continuity (Floridi L., Cowls J., 2019).

According to research data, the interaction between humans and artificial intelligence not only technologically but also methodologically renews the art of animation. In modern conditions, the creative process loses its linear character and acquires an iterative and dialogical form. Continuous exchange between the animator and the algorithm leads to the emergence of new artistic solutions and expressive means. This circumstance contributes to the recognition of animation as an independent and significant phenomenon within the system of contemporary art (Ibragimov R. Q., 2022).

Conclusion

In conclusion, the interaction between human creative thinking and artificial intelligence algorithms represents a transformative phenomenon of the digital era. Rather than replacing human creativity, artificial intelligence functions as an intellectual tool that enhances cognitive capacities, expands artistic possibilities, and accelerates innovative processes. Human beings retain the central role in meaning-making, critical evaluation, and ethical responsibility, while AI contributes analytical power and generative capabilities.

The synergy between human imagination and algorithmic systems fosters new hybrid forms of creativity in art, science, education, and particularly in animation. As digital technologies continue to evolve, the future of creative practice lies not in competition between humans and machines, but in their thoughtful and responsible collaboration.

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