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Machine learning with ann as important technology for new-age literary studies

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Introduction.

Traditional literary studies, based on close reading and personal interpretation, have always been the fundamental method for understanding literary texts. This approach focuses on the careful study of individual works, identifying their stylistic, ideological and aesthetic features. However, with the acceleration of technological progress and the emergence of big data [1], [2], researchers have become in need of new tools. It has become possible to move from considering individual works to studying entire literary eras and trends, which was previously impossible due to the huge amount of information. In this context, machine learning [3], [4] has become a key tool that has allowed us to uncover hidden relationships in literature, combining traditional humanities with innovative computational approaches. These machine learning technologies using neural networks have become not just auxiliary tools, but powerful methodological foundations for the analysis of huge data sets and the subsequent creation of specialized AI systems [5], [6]. It is neural networks that allow philologists to detect patterns that were previously invisible or unanalyzable due to their scale, opening up new horizons for research in such fields as stylistics, thematic analysis, and historical linguistics. Neural networks are computational models that simulate the work of biological neural networks of the human brain [7]. They consist of interconnected nodes (neurons) that process information [8]. In philology, they are used to solve complex tasks that require an understanding of language, its structure, and context. This methodology not only expands the horizons of research, but also forms a new, interdisciplinary field - digital humanities.

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Main Part.

In the modern era of digital transformations, the humanities are actively integrating the latest artificial intelligence technologies into scientific research. Literary studies, which traditionally relied on qualitative analysis of texts, have gained new opportunities thanks to the introduction of Artificial Neural Networks (ANN). Artificial neural networks, capable of self-learning and identifying hidden structures in large text arrays, open up prospects for multi-level analysis of literary texts, identifying stylistic features and semantic connections. ANNs combine traditional literary studies approaches with innovative algorithmic methods, which allows for the formation of new approaches to the interpretation of literary phenomena. Thus, neural networks are becoming a powerful analytical tool that ensures the development of digital literary studies and contributes to the creation of a new methodological basis for humanities research.

Conclusions.

1. Machine learning in literary studies is not just a new tool, but also a new methodological concept that complements, rather than replaces, classical analysis. It allows researchers to move from deep reading, which focuses on details, to macroanalysis (distant reading), which allows them to process thousands and millions of texts, revealing general trends and patterns. This combination makes it possible to see both general trends and individual trees. On the one hand, machine learning opens up unique opportunities for identifying patterns, establishing authorship, analyzing the evolution of language and subject matter, which was previously impossible due to the laboriousness of the process. On the other hand, it has its limitations, since it cannot provide a high-quality interpretation or emotional understanding of the text, which is purely human. The future of literary studies probably lies precisely in the synergy of these two approaches: using algorithms to identify non-obvious connections and patterns, and then applying human intelligence to deeply understand them. Thus, machine learning becomes a powerful assistant that expands the capabilities of the researcher, helping him to discover new, previously unknown worlds of literature.

2. Despite its significant potential, the use of neural networks in philology has its challenges. First, these models require significant amounts of qualitative data for training.

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Second, they often function as a "black box", which makes it difficult to understand how exactly they come to a certain conclusion [9]. Interpreting the results, evaluating new knowledge - still requires deep knowledge and expertise of a human expert [10]. Nevertheless, machine learning with neural networks opens a new era for philology, allowing to move from microanalysis of individual texts to "distant reading", which allows to study literature and language as a holistic system. This combination of "human" and "machine" analysis opens the way to new, revolutionary discoveries in the understanding of language, culture and literature.

3. The use of artificial neural networks within the framework of machine learning in literary studies demonstrates significant potential for updating and improving research methods. The use of ANNs makes it possible to analyze voluminous text corpora, identify hidden patterns, classify genres, conduct stylometric studies and perform deep semantic analysis. They provide automation of routine stages of working with text, which allows you to focus on more creative and interpretative tasks. In the future, the integration of ANNs into the humanities will contribute not only to increasing the accuracy and efficiency of scientific research, but also to the formation of a new scientific paradigm, where technologies and classical humanitarian methods interact for a more complete disclosure of literary processes and cultural phenomena.

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