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Evgeniya Evpak

«Transformation of the composer's activity in the era of digitalization of the creative industries» (the case of the Moscow composers of the 1st quarter of XXI century)

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Anna Novikova

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General Characteristics of the Work

Relevance. The current stage of musical art’s development, which encompasses the initial quarter of the 21st century, is marked by an unprecedented impact of digital technologies on the creative process. The sweeping digitalization of the creative industries, which includes the recording sector and compositional practices, prompts critical inquiries into the transformation of the artist's role amid the proliferation of artificial intelligence. The advent of generative neural network platforms such as MuseNet, Mubert, Suno, Udio, and similar technologies, capable of autonomously creating musical compositions, challenges traditional notions of creativity and provokes discussions about the re-evaluation of the composer's profession and the criteria for authorship. In the Russian context, this matter assumes heightened significance in light of governmental initiatives directed towards the digitalization of culture and the proactive integration of artificial intelligence, thereby necessitating rigorous scholarly examination for both theoretical insight and practical artistic application.

Despite the vibrant discourse surrounding the challenges articulated above within the global academic landscape, the Russian context remains notably underexplored. Existing research predominantly emphasizes a philosophical re-evaluation of the foundational concepts of actor-network theory, particularly in relation to the perception of creative collaborations between "composer and computer technologies" and "composer and neural networks." This inquiry is framed through the lens of a utopian vision of digital comfort, the pursuit of novel significations within the constructs of distributed corporeality and imagery, and an examination of the instrumentation and technical functionalities of MaxMSP and PureData plugins, which enable the creation of sound design elements and auditory effects for experimental sound installations.

The distinctiveness of the domestic musical landscape, characterized by the confluence of academic traditions, experimental endeavors, and adaptation to the digital age, warrants a dedicated examination. Moscow, as a hub of cultural innovation, is particularly noteworthy, as it fosters a unique environment for the exploration of the evolution of creative methodologies shaped by digitalization. In our dissertation, we concentrate on composers based in Moscow, scrutinizing their work through the prism of three interrelated factors: technological, aesthetic (including the impact of algorithmization on the characteristics of musical language at the level of genre canons, artistic research strategies, and the processes of myth-making in a composer’s activities), and sociocultural. This approach allows us to identify stable creative patterns associated with the technological challenges of automation.

The chronological framework of this study encompasses the period from 2000 to 2024, coinciding with significant innovations in the field of musicology. This era marks the emergence of the first holographic artist, Hatsune Miku, the proliferation of music generated through neural networks by composer Brian Eno, and the flourishing economic viability of monetizing digital music via streaming services. Additionally, it witnesses the widespread adoption of generative neural networks in visual, video, and musical arts. This period is also characterized by the adaptation of copyright legislation to address the licensing of musical content produced by the collaborative efforts of "human-neural network" partnerships.

The study of the phenomenon of the transformation of the composer’s role in the first quarter of the 21st century is conducted through traditional art-historical analysis. To complement this approach, we incorporate sociological methodologies and principles of cultural management analysis, thereby enriching our study with an interdisciplinary perspective that is vital for understanding the history and theory of culture. Examining the research issue through the lens of cultural management is of particular importance, as recent years have highlighted the profound impact of evolving professional practices on the organizational structures of cultural institutions. Notably, in November 2022, the profession of composer was reinstated in the official registry of professions. Subsequently, the Russian Composers' Union published a professional standard delineating the responsibilities and functions of a staff composer. Furthermore, in September 2024, the State Duma of the Russian Federation passed, in its second reading, a Law on the Development of Creative Industries, which includes a series of state support measures for the profession of composer.

Research problem lies in the lack of consensus within the scientific and musical communities regarding a number of issues related to changes that are fundamentally significant in new conditions. These changes are driven by the technological advancement of generative tools and the cultural industries' demand for musical products with specific genre and stylistic characteristics defined by the project's format. New forms of human-machine creative practices among both academic and non-academic composers, arising from the use of computer tools and neural networks, on one hand, blur traditional notions of the "author" category and the resulting legal relationships between composers and the music industry; on the other hand, they call into question the principles of musical composition, challenging the evolution of musical language in the contemporary era. In such situations (which artistic culture has encountered more than once), theoretical reflection often lags behind practice, failing to adequately articulate and describe these changes.

The study delineates the evolution of the composer's profession, encompassing the transformation of roles and methods of monetizing creative output, while also examining the responses of the professional community to innovative musical practices. It is imperative for this community to comprehend how to effectively utilize such products. We assert that this research can bridge this gap by offering the musical community an analytical framework to evaluate these types of works. We recognize that the context is complicated by the fact that such evaluations can significantly vary depending on regional communities' attitudes towards digital technologies and prevailing socio-political conditions. Therefore, our analysis is specifically focused on the Russian musical community, particularly on musical texts created by Moscow-based composers, who often remain receptive to global trends. However, this focus does not diminish the broader applicability of our findings. All trends identified through our research material are relevant to a wider array of works.

Degree of Development of the Problem. The essence of the transformation of the composer's role amid the digitalization of cultural and creative industries in the early 21st century is articulated through the *categorical concept of "activity".* The methodological application of this notion is deeply rooted in the theoretical frameworks proposed by L.S. Vygotsky, A.N. Leontiev, S.L. Rubinstein, and A.F. Losev, along with their respective disciples. Notably, D.B. Bogoyavlenskaya elucidates the critical attributes of "activity" as they pertain to the domain of musical creativity. Furthermore, the phenomenon of "individual creative activity within the sphere of [musical] culture and art" has been rigorously examined by scholars such as V. Kholopova, V. Martynov, N. Khrushchova, Yu. Strakovich, and M. Snezhinskaya, in addition to a number of prominent composers, including A. Schnittke, E. Denisov, S. Lavrova, and N. Khrust.

The philosophical aspects of generative musical art began to be explored within the humanities from the mid-twentieth century. A pivotal theme in this discourse revolves around the role of the author and the methodologies of creativity. Bruno Latour's actor-network theory has expanded the boundaries of the creator, incorporating computers and other non-human entities into this process. David Blur's object-oriented ontology also supports the idea of technology's involvement in the creation of art. These approaches resonate with Roland Barthes' and Vladimir Martynov's ideas of the *"death of the author"*, as well as with Gilles Deleuze and Félix Guattari's concept of the *"body without organs"*.

Contemporary scholars have devoted considerable attention to the theme of parallel development between technological advancements and aesthetic evolution within musical artworks. This subject has been explored by researchers such as D.V. Galkin, D. Hesmondhalgh, A. & M. Crockers and M. Weinstein among others. Their ideas resonate closely with the principles of algorithmic composition discussed by composers N.Yu. Khryst and S.V. Lavrova in their respective publications.

In a recent edition of the scholarly journal Logos, specifically volume 34, number 6, thematically titled «After Algorithms»[1], important topics pertinent to our investigation are addressed. Notably, this publication offers insightful reflections from leading national thinkers concerning generative art forms. It critically examines dualities such as animate/inanimate and embodied/virtual that emerge when repetitive creative processes are outsourced to artificial intelligence systems for enhanced human convenience. Philosophically, post-generative aesthetics surpass current advances in contemporary musical compositions. To substantiate these claims empirically, we propose an analytical comparison between the theoretical frameworks presented here and exemplary musical works highlighted in the respected periodical Sound Studies, particularly volume 11, issue 1, published in 2025[2]).

However, sound art and sound studies, while representing one direction among many within contemporary musicology, cannot be regarded as the sole trajectory of modern music's evolution. Alongside academic and experimental music genres, non-academic composers and digital activists demonstrate heightened susceptibility to technological influences, most prominently observed

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[1] LOGOS. Philosophical and Literary Journal. Volume No. 34 (6) 2024. After the algorythms. (Text mode: electronic). URL: https://www.logosjournal.ru/archive/2024/3194/ (Last accessed: 15, May, 2025).
[2] Sound Studies. An Interdisciplinary Journal. (2025). Volume 11, Issue 1. URL: https://www.tandfonline.com/toc/rfso20/current (Last Accessed: 17, May, 2025).

in the recording industry of mainstream and streaming music, partially encompassed under the purview of popular music studies.

When discussing Artificial Intelligence (AI) in the context of musical art, we draw upon the seminal contributions of recent years, including those by A.V. Ilina[3], A.-M. Gioti[4], B.V. Markov and D.A. Yarochkin[5], and A.V. Popova et al.[6]. For elucidating historiography and individual practices involving generative neural networks utilized by composers in academic music, we reference the valuable scholarship of S.V. Lavrova, N.Y. Khrust, M.J. Murphy, M. O'Rourke, G. Mazzola, and other notable figures.

Fundamental to our doctoral thesis are the foundational texts authored by D.V. Galkin and S.V. Lavrova, who elaborate upon the interplay between *technologically-driven artistic innovation and digital culture*. Furthermore, essential to our study is the exploration of *transmedia storytelling methodologies* developed by prominent theorists such as Henry Jenkins, Renira Gambarauto, Robert Pratten, Gary Hayes, and Elena Shapinskaya. Importantly, we emphasize that the concept of "storytelling" extends beyond narrative recounting or tale-telling—it signifies a complex narrative strategy, first popularised in marketing circles during the mid-2010s before subsequently permeating academia.

We deem it essential to underscore that our research encompasses not solely the examination of historical and art-historical treatises pertinent to musicology, but equally critical is the scrutiny of archival and regulatory

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[3] Ilina, A.V. Socio-philosophical Foundations of Research on Artificial Intelligence in Art (Case Study of Music) / A.V. Ilina // Discourse. — 2023. — Vol. 9, no. 6. — P. 44–56. — DOI 10.32603/2412-8562-2023-9-6-44-56..

[4] Gioti A.-M. Artificial Intelligence for Music Composition // Handbook of Artificial Intelligence for Music: Foundations, Advanced Approaches, and Developments for Creativity / ed. by E R. Miranda. Cham:Springer Nature, 2021.P. 53–73. — cited in: Ilina (2023)—ibid., - p. 50.

[5] Markov, B.V. and Yarochkin, D.A. (2021), “Music against the challenges of digital society”, J. of Siberian Federal Univ. Humanities and Social Sciences, vol. 14, no 6, pp. 810–821. DOI: 10.17516/1997-1370-0762. — cited in: Ilina (2023)—ibid.

[6] Popova, A.V., Gorokhova, S.S., Aznagulova, G.M. and Abramova, M.G. (2020), “Concerning the Question of Determining the Role of Artificial Intellect in Music” Music Scholarship, no 2, pp. 7–17. DOI: 10.3377/2587-6341.2020.2.007-017. — cited in: Ilina (2023)—ibid.

documents defining the professional practice of composers during the transition from the late twentieth century into the early twenty-first century.

Our research focuses on the figure of the composer (or the author of the music), whose status underwent transformations across various periods in the history of musical art. Within the framework of addressing legal aspects pertaining to the rights and responsibilities of composers in the digital era, the works of M.A. Fedotov[7], R.A. Budnik[8] and M.A. Tsaur[9] hold particular significance for our study.

Building upon the previously outlined areas of inquiry, we proceed to formulate the objectives and specific goals of our doctoral dissertation.

Research object

The selection of computational and generative musical compositions created by contemporary composers between the years 2000 and 2024.

Research subject

Transformations in composers' creative practices, that are induced by functional shifts associated with radical innovations in music-making software and network-based digital music production techniques.

In this study, we examine how composers utilize digital technologies and generative neural networks to create original musical compositions or transform existing ones, taking into account new artistic objectives and performance capabilities of a musical ensemble through selected musical texts as case studies.

Hypothesis posits that Moscow-based composers' engagement with creative practices involving human-computer and human-artificial intelligence

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[7] Fedotov, M.A. Anthropocentrism as a Metaprinciple of Intellectual Property Law // Journal of the Court for Intellectual Rights. 2025. March. No. 1 (47). pp. 32–51. DOI: 10.58741/23134852_2025_1_4

[8] Budnik, R.A. The Right to Remix: Ideas and Original Forms of Musical Creativity / R.A. Budnik // State and Law. — 2022. — No. 8. — Pp. 47–62. — DOI 10.31857/S102694520021575-3.

[9] Tsaur, M.A. Legal Qualification of Musical Phonograms as Objects of Intellectual Property Rights / Journal of the Court for Intellectual Rights. April 2, 2025 (Online Resource). Available at: https://ipcmagazine.ru/articles/1806811 (Accessed: April 15, 2025).

collaborations during the first quarter of the twenty-first century is driven by two interrelated factors: on one hand, it aligns with the cultural-historical paradigm of musical creativity outlined in the works of L.S. Vygotsky, A.F. Losev, and their successors; on the other hand, it resonates with the universal *triad of the creative process: mimesis, mythologization, and gamification*. It is assumed that many contemporary composers have inherited essential creative strategies from previous generations while augmenting them with current digital tools for realizing aesthetic concepts, including constructing musical instruments specifically designed for performing compositions with live electronics.

The research aims to identify the principles governing transformations in compositional practices and techniques employed within the creative process spanning from 2000 to 2024. In alignment with this aim, the investigation encompasses the following **objectives**:

1. To illustrate and elucidate the reasons enabling us to establish a connection between the technological advancement of digital tools utilized in the creation of musical compositions, the evolution of musical aesthetics, and the relevance of activity-oriented approaches to the creative work of composers active in the early decades of the twenty-first century.
2. Conduct a historical-genetic analysis of the creative practices employed by composers across different periods, which enabled us to identify trends in the development of music-production technologies, the foundations of authorship and copyright, and the aesthetics of musical language.
3. Based on an art-historical analysis, describe the typical creative techniques employed by composers who incorporate new technologies into their artistic practice.
4. Based on an art-historical analysis, describe the typical creative techniques employed by composers who incorporate new technologies into their artistic practice.

5. Drawing upon empirical data from focus groups conducted among Moscow-based composers, systematically categorize the compositional practices of the composers out of the empirical base of the work during the examined period.
6. To identify distinctive features of storytelling within the analyzed composers' works and to elucidate primary narrative structures inherent in the musical storytelling of Moscow-based composers active between 2000 and 2024.
7. To compare the properties of musical language found in compositions generated by neural networks—such as those created by AIVA, Mubert, Suno, and similar platforms—with characteristics identified in human-composed works allows us to elucidate specific distinctions between AI-generated music and that authored directly by humans.

The scientific novelty lies in systematizing scholarly knowledge concerning understudied compositional practices within creative duos such as "human–computer technologies" and "human–neural network," thereby introducing into discourse the works of composers from the first quarter of the twenty-first century. The prerequisites for these practices among contemporary Moscow-based composers have been identified through examples drawn from Russian, European, American, Japanese, and Chinese artistic traditions. A new approach has been proposed for working with comprehensive analyses of musical compositions within the context of linguistic turn studies and research on storytelling techniques employed in music videos and concert films, reflecting the meaning-formative aspects of semiotics at the level of interaction between musical, verbal, and visual subtexts. The primary artistic strategies used by composers when collaborating with computer sequencers, notation editors, and generative neural networks in modern Russian art across various forms of musical practice (streaming music, synchronization with film, music videos, sound installations, virtual reality performances, and live multimedia electroacoustic performances) have been defined. Additionally, a current range of themes, compositional and arranging techniques, expressive means, artistic images and myths, along with issues addressed by contemporary digital and generative musical arts, are articulated.

Theoretical Significance of the Work. This study endeavors to provide a systematic understanding of the creative practices of composers and sound artists who employ computer technologies and machine learning-driven generative neural networks in their work, treating this phenomenon as an autonomous facet of digital music and media art. The materials presented herein document significant figures among contemporary composers actively engaged with these technologies.

This work contributes to advancing the theory of techno-artistic hybridization specifically regarding the description of emerging practices in musical creation utilizing technological tools of computational and generative nature. By synthesizing the results of narrative analysis of the "musical worlds" constructed by the examined composers, it has become possible to formulate insights into trends of storytelling within the realm of digital and post-medial music.

From a theoretical standpoint, the prospects of this investigation suggest delving deeper into the mythological dimensions of musical creativity and expanding the empirical foundation necessary for identifying patterns of mythologization inherent in collaborative efforts between "human-computer" and "human-neural network".

Practical Significance of the Work. The conclusions and research materials of this dissertation can serve as a theoretical and methodological framework for specialists, researchers, art historians [as well as musicologists], cultural scientists, and philosophers of art investigating challenges related to algorithmization of musical creativity and transformations of artistic practices during the era of digital culture, as well as explorations and developments in the field of digital and wearable technologies. The findings enable the development of a model for assessing originality in musical compositions based on holistic intonation-structural analysis applicable to newly composed pieces in both popular mass-market music and experimental genres.

Research material for this study comprises compositions by Moscow-based composers that were conceptualized, created, and performed with explicit reference to and utilization of generative neural networks:

- compositions by Artem Pys'[10] - the multimedia opera "Teo. TEO. THEO" (2018), the performative experiment "Vegetable Orchestra" (2023), and the musical "Love Test" (2024),
- compositions by Alexey Sioumak[11] - instrumental piece "Parovoz Structures" (2010) and electronic piece "Disco Impossible" (2020),
- compositions by Oleg Paiberdin[12] - Piano cycle "Ladies of Philharmonic Society" (2021), motet "Baroque Loops" (2023), and electronic opus "Tango" (2006),

[10] Pys' Artem Vladimirovich (b. 1990). Composer, member of the Moscow branch of the Union of Composers of Russia. Information retrieved from the composer's personal page on the official website of the Union of Composers of Russia. Access mode: online. URL: https://unioncomposers.ru/composer/view/?id=1031 (Accessed: December 10, 2024).

[11] Sioumak Aleksey Sergeevich (born 1976). Composer, member of the Moscow Branch of the Union of Composers of Russia. Information obtained from the composer's personal page on the official website of the Union of Composers of Russia. Access mode: online. URL: https://unioncomposers.ru/composer/view/?id=1136 (Retrieved: December 10, 2024).

[12] Paiberdin Oleg Vyacheslavovich (born 1971). Composer, member of the Union of Composers of Russia. Biography available on the official website of composer Oleg Paiberdin. Access mode: online. URL: https://oleg.paiberdin.ru/biography (Accessed: December 10, 2024).

- experimental music by Nikolai Popov[13] - the performance “POPOV\PIKUNOV\NOVIKOV |E.X.P.E.R.I.M.E.N.T.”[14] for live electronics, saxophones and live electric guitar (2020),
- composition by Nikolai Khrust[15] - an algorithmic sound-and-light composition "Atom" for Vjačeslav Kolejčuk's installation (Garage Museum of Contemporary Art, 2018; Gorky Park, Moscow),
- neuro-album by Kuz’ma Bodrov[16] “Digital Sunrise” (2019),
- Symphony No.1 by Piotr Dranga “Cosmos” (2023),
- live electronic performance by Alina Asomnia “Tactus” (2024),
- neuro-composition by Alexander Sen’ko “Neiry” (2024),
- experimental neuro-projects by Evgeniy Voronovsky “Gen85” (2021) and sound performance by Andriesh Gandrabur “Non-player piano” (2020).

Additionally, the empirical basis of the study included neural network remixes oriented towards examples of songwriting.

It is crucial to emphasize that we are not comparing the musical creativity of various composers and performers of popular music among themselves. Our study does not aim to objectively assess the artistic merits of specific works, as expert opinions on this matter may vary significantly. Our primary focus in this research is the analysis of techniques for utilizing neural networks and the associated creative practices, as well as the analysis of methods for employing computer technologies in the creation of new multimedia and VR music projects

[13] Popov Nikolai Aleksandrovich (born 1986). Composer, member of the Moscow Branch of the Union of Composers of Russia. Information retrieved from the composer's personal page on the official website of the Union of Composers of Russia. Access mode: online. URL: https://unioncomposers.ru/composer/view/?id=927 (Accessed: December 10, 2024).

[14] Nikolai Popov. Performance *"POPOV\PIKUNOV\NOVIKOV | E.X.P.E.R.I.M.E.N.T."* for live electronics, saxophones, and electric guitar (2020). YouTube. Access mode: via VPN. URL: https://youtu.be/oueOS_8FF3A?si=C4i-MopdqoXXxdkr (Accessed: December 10, 2024).

[15] Khrust Nikolai Yurievich (born 1982). Composer, member of the Moscow Branch of the Union of Composers of Russia. Information retrieved from the composer's personal page on the official website of the Union of Composers of Russia. Access mode: online. URL: https://unioncomposers.ru/composer/view/?id=903 (Accessed: December 10, 2024).

[16] Bodrov Kuzma Aleksandrovich (born 1980). Composer, member of the Moscow Branch of the Union of Composers of Russia. Information retrieved from the composer's personal page on the official website of the Union of Composers of Russia. Access mode: online. URL: https://unioncomposers.ru/composer/view/?id=253 (Accessed: December 10, 2024).

with live electronics. A comprehensive understanding of this phenomenon from the perspective of classical musicology will be undertaken at a later stage, once historical distance has been established.

Methodology. The foundation of this dissertation research is an art-historical approach, which enabled us to meticulously trace the historical genesis of practices involving the algorithmization of musical creativity across various periods of global musical culture. This approach focuses on the parallel development of technologies and the emergence of musical instruments that alter compositional techniques and principles, as well as the methods and techniques employed by composers and sound artists in their work with these technologies. The validity of the theoretical conclusions regarding the specifics of utilizing computer technologies and machine learning in the practices of composers was achieved through the integrated application of both general and specialized methods of scientific inquiry.

1. The historical-genetic method was employed to systematize the stages of development in musical composition practices within the historical retrospective of global musical culture. Its application enabled us to substantiate the continuity of compositional principles and artistic research strategies in the works of composers from the first quarter of the 21st century.

2. The methods of intonational-structural and formal analysis[17] enabled us to draw conclusions regarding the specific characteristics of musical compositions and improvisation techniques associated with computer technologies and machine learning methodologies. According to Asafiev, a

[17] Given the heterogeneity of musical material in the empirical research base encompassing both academic/experimental and non-academic/popular genres, when analyzing works by academic composers engaged in sound installations and employing sound art practices, we relied upon I. Etmektzoglou's interpretation of sound composition theory as well as S.V. Lavrova's model for conceptual analysis. For homophonic-harmonic music, we applied B.V. Asafiev's method of intonation-structural analysis, further developed by his students and followers such as V.N. Kholopova, V.A. Zuckerman, A.M. Tsuker, and systematically outlined in G.R. Konson's monograph (2010).

significant feature relevant to this study is the melointonational representation of musical lexemes.

3. Employing the methods of focus groups and narrative analysis allowed us to assess the impact of external factors on composers' creative activities.

Conclusion

1. The necessity to revise the concept of "composer activity" arises from the emergence of new types of professional challenges associated with postmediality and digital culture. Specifically, the contemporary role of the composer encompasses proficiency in music informatics, an understanding of curatorial practices, and knowledge of sociocultural entrepreneurship within the musical and related creative industries.
2. When assessing the composer's contribution to contemporary musical aesthetics, it is essential to consider not only the individual authorial style and the degree of originality in artistic solutions but also the innovative methods employed by the authors in the creation of musical works. A holistic analysis of a musical composition, in this context, enables the identification of its compositional structure, timbral dramaturgy, harmonic analysis, and so forth, while also determining the percentage of originality within the musical composition.
3. The creative strategies that emerged in the 2020s within the tandem of "human-computer technologies" and "human-neural networks" correspond to the universal triad of the creative process: "mimesis-mythologization-gamification." They can be categorized into four distinct creative strategies: “Neural Network as Composer's Assistant”, “Neural Network as a Generator of Fabrications of Musical-Cultural Heritage”, “Neural Network as a Tool for Musical-Technological Breakthrough”, and “Neural Network as an Object of Myths about Creativity”. These four creative

strategies differ from one another based on the principles of utilizing new technologies within the concept of musical composition.

4. Regardless of the differences in compositional techniques across academic, experimental, and mainstream popular music, the creative method of the contemporary composer working in tandem with artificial intelligence determines the manner in which generative neural networks are utilized. In this context, the artistic exploration undertaken by such composers serves as a preparatory phase, upon which the conceptualization of the musical work is founded.
5. To comprehend the distinctive features of the musical works of the type we are examining, it is essential to introduce a specific definition of storytelling within musical compositions into scholarly discourse. In this context, *storytelling* is understood as a comprehensive interplay of verbal, musical, and visual subtexts within a musical piece, enabling the narration of a unified story through multimodal means. This type of storytelling is characterized by three categories: *programmness, agency,* and *mythologization*.
6. The specific distinctions between music generated by neural networks and that created directly by humans in contemporary academic music are not always apparent. These differences primarily manifest when composers lack proficiency in utilizing neural network tools, resulting in a lack of emotional expression, errors in timbral execution, and improper emotional delivery in vocals, among other issues. However, in the industrial forms of music consumption — such as in mainstream cinema and on streaming platforms — these distinctions are more clearly defined, and the volume of experimental music produced by digital activists on these platforms is experiencing explosive growth. This suggests that in the near future, experimental techniques of neural network music, along with new genres and practices, will increasingly influence the musical language, blurring

the aesthetic boundaries between human-created music and that produced by human-machine collaboration.

Validation of Results

Publications on the topic of the dissertation:

Works published by the author in journals indexed in international indexing and citation databases, as well as those included in the lists of high-ranking journals of the National Research University Higher School of Economics:

1. Evpak, E.G. “Media Sharks” HSE University – A Digital Music Publishing House in a Classical Institution of Higher Education / (Russian and English versions) // Television Studies Journal. Vol. 18, No. 2, 2022, pp. 171–214.

2. Budnik R., Evpak E. Human Voice: Legal Protection Challenges *// Legal Issues in the Digital Age. 2024.* Vol. 5. No. 4. P. 28–45.

3. Evpak E.G., Gutsarieva T.A. Mediation Strategies of Popular Cover Performers: The Phenomenon of Lucy Chebotina // Communications. Media. Design. (In Russ.). 2024, no. 4. P. 134-151.

4. Budnik R.A., Guryanov V.V., Evpak E.G. Neural-network Visualization as a New Trend for Additional Monetization of Streaming Music by Indie Artists // Proceedings on Intellectual Property. (In Russ.). 2024, no. 4. P. 80-122.

5. Evpak E.G. The Problem of Author Identity in Musical Art in Light of Philosophical Concepts by David Blur and Bruno Latour // Human being:

Image and Essence. Humanitarian Aspects. (In Russ.) 2024, no. 4. P. 19-41.

Other publications:

1. Evpak, E.G. Fundamentals of Music Production: For Multimedia Producers. (In Russ.). Moscow: Ridero, 2021.
2. Boos V.O., Evpak E.G. Salieri from Skynet (In Russ.) // Rating of Innovative Attractiveness of World Cities: 2024 / E.S. Kutsenko, L.M. Gokhberg (eds.); V.O. Boos et al.; edited by L.M. Gokhberg, E.S. Kutsenko; National Research University Higher School of Economics. – Moscow: ISIEZ HSE, 2024. – pp. 179–183 – ISBN 978-5-7598-3022-1.

Conferences:

The outcomes of these studies were presented at the following conferences:

1. VI International Scientific-Practical Conference "Digital Media for the Future" (Moscow, HSE, April 6, 2021),
2. I, II, and III International Forum of Young Creative Economy Researchers (Moscow, ISSEK HSE, 2021, 2022, 2023),
3. International Conference “Theories and Practices of Arts and Design: Socio-cultural, Economic, and Political Contexts” (Moscow, HSE, 2022, 2023, 2024, 2025),
4. All-Russian Scientific-Practical Conference of the State Institute for Art Studies entitled "Rock Music in the Context of Contemporary Culture" (Moscow, SIAS, November 18, 2022),

5. IV and V International Scientific-Practical Conference "AUTHOR" organized by UNESCO Chair of the National Research University Higher School of Economics (Moscow, HSE, 2024 and 2025),
6. XVIII International Scientific Conference of Students and Postgraduates "Research by Young Musicologists" at the Gnessin Russian Academy of Music (Moscow, RAM of Gnessin, April 7, 2025),
7. IX Annual Forum of Young Researchers in Art and Culture "Art of the XXI Century: Dialogue Between Tradition and Modernity," hosted by the State Institute for Art Studies (Moscow, SIAS, April 22, 2025).

The structure of the dissertation is defined by the goals and objectives set forth in the investigation. This work comprises an introduction, three chapters, a conclusion, bibliography of 199 sources, and appendices. The total volume of the dissertation amounts to 277 pages.

TABLE OF CONTENTS

In the **introduction**, the relevance of the topic is substantiated, the problem statement of the dissertation is formulated, and the object and subject matter, objectives, and tasks of the research are delineated. Additionally, the current level of scholarship addressing the issue is examined, and the methodology intended to achieve scientific insights is proposed. Furthermore, this section establishes the scientific novelty, theoretical significance, and practical value of the work within the broader context of modern arts scholarship, presenting also the empirical materials utilized in the research.

Chapter 1, "Transformation of Composers' Activity Under the Influence of Techno-Art Hybridization Effects", examines pivotal periods in the history of musical art during which technological advancements exerted profound influence over artistic creation. Applying D.V. Galkin's theoretical propositions on techno-art hybridization to identified stages in the evolution of musical innovations, it is demonstrated that technologies had direct impact on the emergence of novel aesthetic forms in musical art.

Section 1.1. “Methodology of Classifying Musical Innovations Using Terms of Techno-Art Hybridization Theory”, discusses the approach to adapting the optics of D.V. Galkin's theory of techno-art hybridization for describing transformative phenomena in the work of composers. It also identifies three key aspects influenced by effects of techno-art hybridization on transformations in composers' activities in musical art from antiquity to the beginning of the twentieth century: (1) dominant type of professional activities of the composer, (2) evolution of composition principles and techniques, alongside general evolution of musical language, and (3) expansion of musically narrative and mythopoetic vocabulary.

Section 1.2. “Types of Composer Activity Throughout History of Musical Culture” showcases principal dominant vectors of creative activity are identified for composers throughout history: “musurgius / inventor”, “craftsman”, “impresario”, “mythmaker-narrator” and “universal genius”. It is argued that major shifts in the focus of models for monetizing musical creativity occurred with the advent of digital technologies and the Internet. These changes were significantly influenced by the reinstitutionalization of art, notably concentrating academic and experimental music around "centers of technological excellence" such as IRCAM in France and CEAM in Russia.

In **Section 1.3. “Evolution of Algorithmic Composition Practices and Generative Music in Terms of Techno-Art Hybridization”** a definition of the term *"musical innovation"* is introduced. It refers to novel approaches, ideas, and technologies employed in the creation, performance, and reproduction of music. This includes the emergence of new genres, application of automation tools and technologies enhancing musicians' creative labor, development of original compositional techniques, and innovative distribution methods for musical works.

In **Section 1.4. “Conclusions to Chapter One: Key Stages of Techno-Art Hybridization in Musical Art”** based on events analyzed in previous sections of the chapter, the role of pre-print era in shaping the typological classification of composing activities is emphasized. It underscores how each historical period saw a dominant form of composing activity that was directly contingent upon technological innovations in musical art.

Chapter 2. “Practices of Digital and Post-Media Creativity Among Academic Composers and Sound Artists” presents the results of an art-historical analysis of the musical creations of academic composers, highlighting the role of digitization in the music industry in generating new musical and creative methodologies.

Section 2.1. “Musical Innovation as a Creative Method and Practice of Innovative Composers” investigates exemplary works by composers across different epochs—Bach, Janequin, Couperin, Dandrieu, Daquin, Rameau, Vivaldi, Beethoven, Rimsky-Korsakov, Rachmaninoff, Hiller, Schnittke, Jarre, Sioumak, Payberdin, Bodrov, Popov, Khryust, Pys’—and analyzes their use of diverse musical innovations within the universal triadic framework of a composer's functional activities: *“mimesis – storytelling – gaming”*.

Section **2.2. “Multimedia Opera "Teo. TEO. THEO" by Artem Pys’ as an Authorial Interpretation of a Generative Neural Network”** examines mimetic principles in the multimedia opera "Teo. TEO. THEO" (2018) composed by A.V. Pys’. Specific instances of compilation and pseudo-quotation, as well as elements of musical parody and caricature encountered in the piece, are analyzed. The techniques involved in hybrid score creation for the multimedia opera are described, focusing on the combination of graphic notation methods and conventional notational systems executed using digital music editors.

Section 2.3. “Attractions in Artistic Embodiment of Musical Images in the Works of Artem Pys’ and Aleksey Sioumak”: analysing the compositions by Aleksey Sioumak ("Disco Impossible" and "Parovoz Structures"), alongside Artem Pys' contributions—a dance sequence performed by aliens under his music in the musical "Test na Lyubov'" and his performative experiment with a vegetable orchestra in Adygeya—the following conclusions are drawn: four distinct categories of "musical attractions" are proposed: (1) *Interactive Musical Performance:* Engaging with natural/material or digital mediums; (2) *Monomedia Generative Music:* Created solely within a single medium; (3) *Polymedia Generative Music:* Incorporating multiple media simultaneously and (4) *Poly-styled Electroacoustic Compositions:* Combining varied stylistic influences within electroacoustic contexts.

Section 2.4. “Games with Algorithms for Generating Electroacoustic Music in the Works of Alexander Senko, Alina Asomnia, Yevgeny Voronovsky, and Andriesh Gandrabur”. By exploring regularities in composers' usage of music generation algorithms through neural networks (e.g., Mubert) and interactive online applications for generating timbral rhythmic structures (PureData), this section analyzes the phenomenon of technological transformation in the compositional technique of the motet genre. Through case studies of electroacoustic performances such as A. Senko's "Neiry," A. Asomnia's "TACTUS," A. Gandrabur's "Non-Player Piano," and E. Voronovsky's generative remix constructor "Gen85," three characteristic directions emerge in the algorithmization of processes for preparing live performances using wearable electronics and generative algorithms: (1) programming live sessions with wearable tactile electronics via MIDI

interface and carnivalesque performance; (2) principle of digital-electroacoustic motets utilizing generative musical playback, and
(3) speculative games by composers/sound artists with neural networks, manifesting in roles akin to "tamer of elements" and "perpetuum mobile," resulting in the mythologization of electroacoustic performance narratives.
Furthermore, a three-step model is proposed for identifying distinctive features of algorithmic practice in creative processes: (1) identification of the technologically-aesthetic phenomenon within a musical project;
(2) development of procedural characteristics enabling composers/sound artists to achieve results comparable to those achieved through the technologically-aesthetic phenomenon; and (3) determination of the purpose behind applying technologically-aesthetic practices by composers/sound artists, whether aligned with achieving aesthetic properties of musical works or situated within pragmatic interactions with target consumers of cultural products.

In “**Section 2.5. Findings of Chapter Two: Expressive Devices in Hybrid Postmedia Music”** the identified patterns in algorithmic music creation practices are grouped into two categories: (1) technological transformation of motet composition technique and live improvisation on a given melody, and (2) repetition-based principle of repetitiveness and ostinato in structuring project sessions for live performances featuring computers and live electronics. The four types of "musical attractions" discussed in §2.3 are suggested as forming subcategories in classifications of musical attractions characteristic of the first quarter of the twenty-first century.

Chapter 3. “Creative and Producer Practices of Storytelling in Academic and Non-Academic Music by Human Authors in the First Quarter of the Twenty-First Century” explores the narrative potential of musical composition within remix culture and refines the definition of "storytelling in music" applicable to new practices of creating and distributing musical works by composers who utilize digital instruments and neural networks. Storytelling in music is viewed as a multilayered system comprising various narratives—verbal, auditory, visual, cultural-historical, and mythological—that collectively constitute a music video (an audiovisual media product).

Section 3.1. "Storytelling as Foundation of Narrative Structure in Musical Works" provides a systemic theoretical analysis of storytelling in music as a conceptual category establishing causal relationships between descriptive categories such as *"programmability," "agency,"* and *"mythologization"*. To illustrate programmability, examples are taken from compositions like A.S. Sioumak's "Disco Impossible," O.V. Payberdina's "Ladies of Philharmonic Society," and K.A. Bodrov's "Digital Sunrise." Agential phenomena in music are explored through performances incorporating sensory gloves used by Imogen Heap and the "Tactus" performance by Alina Asomnia.

Section 3.2. "Mythologization as an Ontological Process in Formation of Musical Narratives" presents a systematic attempt to comprehend mythologization as a process within the context of musical myth-making from two perspectives: (1) *Artistic Simplification*: the simplification of perception of complex phenomena through the creation of simple symbolic narratives (myths), accompanied by stylization, stereotyping, and archetypal representation of actual and imagined realities, and (2) *Personal Mystification*: The mystification of the personality and creative output of the composer. It is established that thematic elements and affective intonational-harmonic structures in music function as signifiers of transmitted mythological images. An inventory of the most common mythologized figures and plots drawn from the history of global musical culture is provided.

In **Section 3.3. "Economic and Legal Aspects in Composers' Work as Factors Driving Storytelling in Contemporary Music",** through examples drawn from our analysis of works by K. Bodrov, P. Dranga, A. Pys', E. Voronovskiy, and A. Gandrabur, this section demonstrates the role played by institutional economic dictate (such as SberTech, Yandex, Stanislavsky Electrotheater, and Mubert) in determining themes for conceptualizing musical compositions. The normative documents regulating composers' activities, including provisions of copyright law, are reviewed. Experimental data gathered from restrictions imposed by digital distribution platforms reveals that music generated via prototype-generating neural networks (like Suno, Mubert, AIVA, Udio, etc.) cannot currently be distributed as streamable music on streaming services. This finding supports the anthropocentric character of the prevailing system of copyright law in spring 2025, which recognizes only human composers as legitimate authors.

The concluding remarks summarize the overall findings of the study. Predictions are made regarding future prospects for examining the practices of techno-artistic appropriation by researchers-composers engaging with new experiences of interaction with technologies and science-art multimedia projects.

Additionally, the conclusion highlights that the proliferation of generative neural networks capable of prototyping music poses significant economic challenges to the market of music streaming services. Moreover, it questions existing norms of copyright institutions privileging the creative labor of human origin.