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Research Article

The evolution of music and musician students' views on ethical dilemmas related to transhumanistic music

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Abstract

The article examines the relationship between the new 21st-century composing paradigm and human evolution, as well as the attitude of young musicians towards the future of music, with the participation of students from the Tbilisi State Conservatoire. The importance of the research lies in its ability to address how AI, new genres and digital paradigms, and renewed compositional methods and tools change compositional principles and determine the interconnection of these novelties with the ideas of Advanced Humanism. The research problem is to investigate how scientific and technological advancements, especially those related to AI, are transforming creative tendencies, aesthetic values, and ethical perceptions in contemporary art music, and how these changes impact the future of musical expression, spiritual discourse, and human identity. As the research model, this study adopts a qualitative approach grounded in interpretivism, employing document analysis as the primary method. Fifty music students from the Tbilisi State Conservatoire participated in the study, providing the necessary data. Selected scores and audiovisual recordings of contemporary compositions that contribute to transhumanistic art music were also analysed. For data collection, a custom-developed questionnaire titled *Opinions on Ethical Dilemmas in Transhumanist Music* (OEDTM) was used. It included ten ethical dilemmas and applied a 5-point Likert scale to collect students' opinions on transhumanistic music ethics. The analysis demonstrates how scientific advancements have influenced creative tendencies in contemporary music. Art music—through new directions such as eco-music, multimedia, algorithmic composition, generative art music, and AI music—breaks compositional stereotypes and transforms traditional music-making. Creative imagination is increasingly realised in digital spaces, reshaping sonic realities and giving rise to a new techno-aesthetic agenda. All of this contributes to the transformation of consciousness, preparing humanity for further evolution—an era framed in terms of transhumanism, posthumanism, metahumanism, or Euro-Transhumanism. Art music, most closely associated with conveying humanity's spiritual origins, will continue to embrace religious and spiritual discourse. The new techno-aesthetic platform does not contradict spiritual principles. The study concludes that the future processes of humankind's evolution, leading to techno-humans, will not change the mission of art. Technological advancements, including AI, new genres, compositional paradigms, and modes of expression aligned with transhumanistic ideals, will not diminish the spiritual and ethical significance of human-composed music. Participants responded significantly to most ethical dilemmas regarding transhumanistic music ($p<.001$). They strongly disagreed with statements such as "It can be regarded as human-produced" ($\overline{X}=1.82$) and "Competition is fair" ($\overline{X}=1.60$). They also mostly disagreed with "AI-generated music qualifies as emotional art" ($\overline{X}=2.12$), "enhanced performance is authentic" ($\overline{X}=2.28$), and "the musician's role diminishes" ($\overline{X}=2.32$). Views were neutral on ownership ($\overline{X}=3.10$) and cultural homogenization ($\overline{X}=3.32$). The highest agreement was with "humans are responsible for harm caused by AI" ($\overline{X}=4.08$). No statistically significant gender differences were found ($p>.05$). Specifically, findings from students reveal a strong commitment to human-centred creativity and ethical accountability, highlighting a cautious yet thoughtful engagement with transhumanist innovations in music.

Keywords

AI-generated music, compositional principles, contemporary music, eco music, electronic music, ethical dilemmas, transhumanism, transhumanistic music

Introduction

This article delves into how the evolving paradigm of 21st-century music composition mirrors and interacts with the broader trajectory of human evolution. The evolution of musical thinking, alongside the rapid development of artificial intelligence, has fundamentally

transformed the musical landscape. The dynamics of civilization's progress—and its cultural products, including music—have become increasingly intense. While these changes have opened up boundless creative opportunities, they have also introduced new challenges, many of which are closely tied to the rise of artificial intelligence.

This article explores these transformative processes, focusing particularly on how they are perceived by Generation Z musicians—specifically, students of the Tbilisi State Conservatoire (TSC) in Georgia. Their reflections provide valuable insight into both the achievements and the difficulties facing music in the modern era. It is assumed from the outset that this generation, Therefore, their perception of these evolutionary processes is particularly valuable. Having grown up in a technological and digital environment, this generation demonstrates a remarkable ability to adapt to change, swiftly master emerging technologies, and integrate them into musical practice. This positions them uniquely to analyze how artificial intelligence is transforming traditional modes of creativity. Furthermore, it is through the contributions and interactions of this generation—as composers, performers, musicologists, and music industry professionals—that the music of the future will be shaped. Notably, their heightened sensitivity to and critical awareness of ethical issues adds an essential dimension to discussions surrounding the responsible use of artificial intelligence in the arts.

First and foremost, it should be emphasized that the development of music is an integral part of the evolutionary processes of both civilization and human nature; however, this relationship is reciprocal. In particular, while the concept of human nature may be challenged or even dismissed from various perspectives, such as cultural anthropology, evolutionary biology, and moral relativism, music stands as a powerful reflection of humanity's history and the evolution of human nature. Why is music very important field of human activity and why it also influences the human evolutionary process? As Music directly reflects humanity's fears, pains, social changes, tastes, aesthetics, since ancient times, music was an integral part of the transformative processes in its way shaping humankind's evolution. The following scholars Jean Maruani, Ronald Lefebvre, and Marja Rantanen discussing the role of music, suggest that music used in magic rituals, as well as in modern collective events stimulate manifest a power that can overcome that of speech:

> Great founders of religion obviously preferred speech to music, but great kings of Israel composed music and poetry. It is significant that real totalitarian rulers had somehow an official composer (Wagner, Prokofiev, but also Lully for the absolute monarch Louis XIV) while all western music was banned by the Talibans. In the 5th century BC Confucius had written: *"If one wished to know if a kingdom is well governed and if its habits are good or bad, the quality of its music will tell the answer"*. About the same period, in another part of the world, Plato wrote: *"Let I make the songs of a nation, and I will not care about whom makes its laws.* (Maruani et al., 2003).

Music was always a powerful means of cultural, social, and political expression that evolves in close connection with the socio-cultural structures of society and plays a crucial role in shaping both individual and collective identities. As musicologist Alper Şakalar states, "Music has played a significant role as a form of cultural expression throughout human history, serving as an effective tool in the construction of both social and individual identities. Musical practices have intertwined with the socio-cultural structures of societies, evolving in interaction with these structures. In this context, music has gained importance not only as an aesthetic phenomenon but also as a form of social, political, and cultural

expression." (Şakalar, 2024, 91). Sometimes, wars add a new dimension to the mission of music. Ukrainian musicologist Iryna Tukova believes that, despite the often challenging musical language of art music—which is not widely known or easily understood by the general public—"art music is also a powerful tool for transmitting messages of resistance." (Tukova, 2024:6).

Even today, music not only reflects social issues and scientific-technological progress, but also actively influences shifts in human consciousness

What is the reality we face today, where is civilization heading, and what role will music play in these transformative processes? This article seeks to explore these fundamental questions.

Powerful computer and biomedical technologies will extend the human lifespan, and increase mental and physical abilities. According to scholars Sonia Baelo-Allué, and Mónica Calvo-Pascual, "the combination of the digital, physical, and biological dimension is leading to great advances in science and technology contributing to human enhancement, both of our bodies and our minds." (Baelo-Allué et al., 2021:5). The rapid technological progress will add a new dimension to the discourse on human nature.

It is obvious that enhanced humans will develop new forms of art, creativity, communication, and cultural expression, and these changes that are already being observed in art music started from the beginning of 20th century intensively.

In 20th-century art music, composers began to conceptualizing broader, more universal issues—focusing on global problems and the existential challenges of humanity, rather than the personal or individual dramas of characters or personages of musical works. This shift also brought novel soundscapes and groundbreaking innovations, such as electronic musical instruments, which gave rise to electro-acoustic music. The new era saw the growth of the music recording industry and the widespread adoption of electronic instruments, ultimately paving the way for the computer age. In this context, calculation and algorithmic processes became central to musical creation, a development closely linked to internet software. As Peter Manning writes, "This concerns the development of the Internet, and how this communications revolution has influenced the development of computer music during the current century." (Manning, 2013:468).

In the future, it is evident that enhanced humans will develop new forms of art and cultural expression and music is not exception; In response to present rapidly changing reality, along with new genres in other art forms (Such as science fiction (sci-fi), dystopian and utopian fiction, cyberpunk, post-apocalyptic fiction, speculative fiction, philosophical fiction, hard science fiction, transhumanist fiction, etc.) art music, embraces a wide spectrum of innovative composing methods, approaches and new genres, including eco-music, multimedia works, algorithmic and electronic compositions, generative art music, bio-music, and creations powered by artificial intelligence (AI music). As for the latter, the emergence of AI has brought about an unprecedented revolution across various fields, including the art music. All these new innovative methods of artistic thinking, relatively new directions or genres in art music, a great amount of algorithmic and electronic compositions challenge traditional (from today's perspective stereotypical) approaches to composition, sometimes breaks traditional compositional stereotypes, reshape sonic realities and open up unprecedented avenues for experimentation. All these processes in art music are evidence that contemporary art music is relevant to scientific-technological progress and reflects the upcoming changes. Indeed, art music in its turn, will prepare humanity for a new stage of evolution—an era increasingly framed in

terms of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism[1] [2].

From the perspective of the aesthetic platforms of contemporary processes, a group of Ukrainian musicologists discusses 21st-century art music in connection with Metamodernism—a new approach to evaluating the aesthetics of contemporary music developments: Metamodernism is an idea that tries to capture the spirit of the time by talking about cultural and artistic practices and events that were made possible by the rise of the Internet, the information explosion, and the total technologicalization of life (Severynova et al., 2025).

The novelty of the research is connected to the following points:

- Instead of viewing music merely as a cultural artifact, this study argues that music itself shapes and prepares humanity for evolutionary leaps.
- The research proposes a new techno-aesthetic framework to interpret the evolution of art music in parallel with human and technological development.
- By analyzing how new musical genres, directions (multimedia, eco music, AI-generated music) reflects and influences humanity's potential post-biological future (transhumanism, posthumanism, metahumanism, Euro-Transhumanism), the study attempts to build a rare interdisciplinary bridge between philosophical anthropology and contemporary compositional practices.
- The novelty of this article lies in the use of a custom-developed questionnaire based on a 5-point Likert-type scale, which was completed by students of the Tbilisi State Conservatoire. This approach was employed to explore the reflections of the new generation on key ethical dilemmas related to the future of music.

Theoretical Framework

As the article touches on a broad range of themes—including the development of art music in the digital era, AI-generated music, and human evolution—the following multidisciplinary theoretical frameworks are applied: transhumanism, posthumanism, metahumanism and Euro-Transhumanism theories that are used to examine how technological integration (AI, algorithmic composition, bio-music, etc.) impacts human evolution and music composing process. These theories are grounded in the works of Donna Haraway, N. Katherine Hayles, James Hughes, Ray Kurzweil, Natasha Vita-More, Nick Bostrom, Stefan Lorenz Sorgner. They link developments in human evolution and art to the transformation of humankind as a species into advanced forms of humanity. The study employs the theoretical framework of French philosopher Jean Baudrillard's theory of simulation, simulacra, and hyperreality, to analyze the distinctive characteristics and implications of AI-generated music (Baudrillard, 1994).

[1] **Transhumanism** is a future-oriented movement that seeks to reshape human experience through advanced technologies that enhance cognition, physical abilities, and human potential; **Posthumanism** is a philosophical paradigm that challenges human-centered thinking, promoting a decentered view of human identity shaped by technology, ecology, and non-human agents. It redefines the human in the context of biotechnological convergence, AI, and global interdependence; **Metahumanism** moves beyond classical humanism and transhumanism by uniting technological advancement with moral, intellectual, and aesthetic growth. It envisions a post-anthropocentric future shaped by innovation, ethical awareness, and collective purpose; **Euro-Transhumanism** is a regionally grounded form of transhumanist thought, aligned with European philosophical traditions, democratic values, and bioethical principles. It supports human enhancement while upholding values like human dignity, social responsibility, and cultural pluralism, aiming to balance innovation with ethical reflection;

[2] To avoid confusion, it is important to distinguish between two terms: **transhumanism**—the philosophical and intellectual movement—and **transhumanist**, which refers to an individual who supports or promotes the movement's values, goals, and vision. In this context, I use transhumanism to denote the broader ideological framework, and the term transhumanist to describe philosophers, scientists, engineers, or artists who align themselves with transhumanist thinking and ethical principles.

Musicological Environment

The rapid growth of artificial intelligence (AI) is opening up new avenues in music composition. Composers are now viewing AI not just as a tool, but also as a creative partner in the music-making process. This shift raises important questions about authorship, the nature of creativity, and how we evaluate artistic value. As a result, musicology that explores these processes is becoming increasingly interdisciplinary, engaging with fields such as computer science, psychology, and media studies.

Music Researchers are studying AI-generated music to understand how it imitates styles, blends diverse genres, and changes music sounds. At the same time, there are ongoing discussions about the ethics of AI in music, how it affects human musicians, and how it changes the way the music composition process. As AI tools like AIVA, MuseNet, and Magenta continue to grow, musicologists must find new ways to study and think about music in this changing landscape. AI is changing the way composers think about the creative process, even when it is not directly used in contemporary music compositions. Music researchers are also studying new genres of art music, such as multimedia and eco-music, that are relevant to the digital era.

Literature Review

Considering the subject and focus of the scientific paper, the article offers cross-disciplinary research, grounded in a thorough review of relevant theoretical frameworks and literature.

I will highlight the most important sources used in article, that helped to create the methodological apparatus. The research was conducted through the classification of scientific sources into three main fields, according to the following principles:

Group 1: Scientific works on trends in contemporary music genres, compositional methods, AI music, emerging directions in modern music, and specific music compositions;

The most important guideline that should serve as one of the main sources on AI music was The *Handbook of Artificial Intelligence for Music: Foundations, Advanced Approaches, and Developments for Creativity*, edited by Eduardo Reck Miranda, is a comprehensive reference that explores the intersection of artificial intelligence (AI) and music. It delves into how machines can be enabled to listen to and compose music by simulating aspects of human musical intelligence. The book covers a wide range of topics, including human musical intelligence and AI simulation, AI applications in the music industry, interactive musical robots, and AI-based creativity. As Borodovskaya et al state, "This book contains all the most relevant and recent world research in the field of artificial intelligence for musicians: a wide range of scientific topics affecting sociological, philosophical and musicological issues; music cognition and perception; improvisation and composition; orchestration and studio production; sound synthesis and signal processing; music transcription. This guide shows how artificial intelligence technologies have entered the music field by modern scholars, programmers, biologists and engineers, which reveals interdisciplinary perspectives in this digital sphere" (Borodovskaya et al., 2022:149). The most thought-provoking ideas about AI music can be found in Seyhan Canyakan's (2024) articles. He investigates how listeners perceive compositions by AI compared to those by human composers. Utilizing a mixed-method approach, the research reveals that human-composed pieces are generally rated higher in emotional depth and memorability. Among the few researchers of posthuman tendencies in art music, Georgian composer and musicologist based in Ukraine, Asmati Chibalashvili (2021), stands out as one of the most significant contributors. She highlights AI's potential to expand artistic creativity and explores the incorporation of AI in various artistic domains, including music.

Chibalashvili emphasizes the potential of AI to expand creative boundaries. Interesting insights can be found in the following author's articles: Buket Yenidogan (2021) presents a philosophical analysis contrasting transhumanistic and posthumanistic views on AI-generated art. Gianet, Di Caro, and Rapp (2024) study human-AI collaboration in composition, promoting AI as a creative partner. The paper discusses whether AI should be considered a creative agent or merely a tool. Yenidogan underscores the ongoing debate about the authenticity and value of AI-created art.

Group 2: Scientific works on exploring the movements and philosophies of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism;

The selected works explore the complex relationship between religion, spirituality, and transhumanism. Bruce Ellis Benson (2020) questions the very definition of "religion," tracing the roots of spirituality beyond traditional frameworks. Alex Gillham (2020) investigates how religious experiences influence justified belief in God, incorporating epistemological perspectives such as pragmatic encroachment. James J. Hughes (2011) analyzes the compatibility between religious and transhumanistic views on metaphysics, suffering, virtue, and transcendence, arguing that enhanced futures can align with spiritual values. Manitza Kotzé (2020) discusses Christian doctrines of sin in the context of transhumanism, particularly regarding its role and perception within the public sphere. Together, these works contribute to a nuanced understanding of how emerging technological philosophies intersect with longstanding religious ideas and ethical concerns. Natasha Vita-More (2008) explores the concept of "regenerative existence" as a foundation for Human 2.0, or the transhuman. It discusses how emerging biotechnologies (like stem cell therapy) and digital technologies (such as immersive environments) will play critical roles in extending human life and enhancing human experience. The author argues that the design of an amended, extended, and suspended human body is not only possible but will be in high demand by 2025, emphasizing a transdisciplinary approach to human evolution. Though the provocative idea belongs to Anne Foerst (2008), she concludes that we ought not to improve *Homo sapiens*, but rather focus on creating an intelligent partner species—such as humanoid robots—that can help teach us to become more tolerant.

Group 3: Scientific works exploring the intersection of religion and transhumanism, as well as the spiritual processes occurring in the contemporary world.

This collection of works addresses various philosophical, ethical, and societal dimensions of trans/post/meta/Euro-Transhumanism within the context of the Fourth Industrial Revolution and the Anthropocene. Sonia Baelo-Allué and Mónica Calvo-Pascual (2021) discuss how trans and post-human identities are represented amid technological and ecological transformations. Nick Bostrom (2013) emphasizes the urgency of preventing existential risks to humanity's future, highlighting AI and bioengineering threats. Michael Hauskeller (2013) and Stefan Lorenz Sorgner (2017) explore transhumanism's reinterpretation of human nature and Nietzschean concepts of the overhuman. Sorgner's ideas are foundational in many areas and offer a wealth of entirely new concepts. His interests also extend to art music, as he thoroughly explores Wagner's connection to transhumanism. Tom Koch (2020) along with Vojko Strahovnik and Mateja Centa Strahovnik (2024) analyze moral perfection and virtue ethics as goals of human enhancement. Susan B. Levin (2020) offers a critical view of the unfulfilled promises of transhumanism, while Franc Mali (2024) focuses on its role in unifying creative human thought. Another scholar, Lílian Santos (2023), examines the bioethical challenges associated with the governance of genome editing. Very

interesting ideas can be found in following author's papers. For example: Yunus Tuncel (2023) presents alternative artistic reflections on human identity, while Eliezer Yudkowsky (2008) evaluates AI's dual role in global risk. The above-mentioned works contribute a multifaceted understanding of transhumanism's philosophical foundations, ethical dilemmas and cultural implications.

Thus, this particular research was based on three types of sources, which provided the theoretical framework with a strong methodological foundation for analysis. All of these sources, which can be considered as past knowledge, examine specific aspects directly related to the core topic of my research.

The study is expected to identify selected musical works that can be meaningfully analyzed in the context of the future tendencies of music, particularly in relation to transhumanism, posthumanism, metahumanism, and Euro-Transhumanism—concepts that are collectively framed in this study under the umbrella term *Advanced Humanism*. The research expectations involve investigating how and why eco-music and AI-assisted compositions may serve as artistic reflections of, or contributions to, the ongoing evolution of humankind.

Transhumanistic Music and Ethical Dilemmas

In recent years, the concepts of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism have increasingly intersected with the field of art, including art music, resulting in the development of a new subfield provisionally titled *transhumanistic music*. This development has encouraged researchers to investigate its technological, philosophical, and what is most important, ethical dimensions. Existing studies have primarily focused on the use of artificial intelligence in composition (e.g., Cope, 2001; Ariza, 2009), the enhancement of human capabilities through technology in performance contexts, and the redefinition of the process of creativity in posthuman environments (Eldridge & Bown, 2018). Furthermore, scholars have begun to address the ethical concerns emerging from these integrations, particularly issues of authorship, authenticity, and the emotional impact of technology-driven musical experiences. Building on these discussions, the present research aims—among other objectives—to examine how students at the Tbilisi State Conservatoire, as emerging musicians, future creators, critics, or simply listeners, perceive and evaluate these ethical dilemmas within the framework of transhumanistic music.

Research Importance

The relevance of the article is determined by several key factors, which can be outlined as follows: it explores the future trajectories of music in the context of rapid technological advancement, particularly the rise of artificial intelligence and the integration of music into digital modes of thinking.

The article examines prevailing genres, forms, and specific compositions in 20th- and 21st-century music that can, in various ways, be linked to the philosophy of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism.

These musical developments are seen concerning to a broader transformation of human consciousness that is gradually breaking down the traditional hierarchy of musical genres. While the narrative or dramatic development of traditional classical musical forms such as opera and instrumental genres has long focused on themes of dualism and conflict, contemporary art music guides listeners to replace anthropocentric (ego-based) thinking with biocentric or ecocentric modes of perception.

The research is based on the results of a survey conducted among student musicians, focusing on the involvement of artificial intelligence in composition, recent

compositional innovations, new genres and the relationship between contemporary music and transhumanism, posthumanism, metahumanism and Euro-Transhumanism.

This research is significant because it examines the profound transformation of art music in the 21st century under the influence of artificial intelligence, digital technologies, and transhumanistic thought. The new compositional approaches, the emergence of new directions and genres in art music, and the active involvement of artificial intelligence in the creative process all reflect and resonate with the ongoing transformation of human evolution. By integrating the concept of Advanced Humanism and ethical considerations into the analysis of new directions in art music such as AI-generated music, eco-music, and multimedia compositions, this study contributes to a deeper understanding of how music may evolve alongside humanity.

Another aspect that highlights the importance of the research is: The paper addresses a pressing cultural and artistic issue: how technological and scientific advancements are not only altering the way art music is composed and experienced but also redefining spiritual expression and human identity.

No less important is its exploration of ethical dilemmas, which are becoming increasingly prominent as artificial intelligence takes on a greater role in the compositional process. Furthermore, the study fills a critical gap in contemporary musicology by investigating the ethical dilemmas that arise from blending human creativity with machine intelligence. Its findings show that even in an increasingly digitized environment, the core spiritual and ethical functions of music remain relevant, and that the younger generation is both open to innovation and mindful of its consequences.

This study is significant as it is the first to attempt drawing a parallel between two phenomena: Just as human-composed music differs from AI-generated music, our reality likewise differs from hyperreality, where simulacra emerge following simulations. From a future perspective, there is a strong possibility that AI-generated music will have a greater impact on people and manipulate their emotions more effectively than human-composed music. A strong emotional attachment to AI-generated music may lead to emotional distancing from the music of previous eras. In such a scenario, we may face a phenomenon in which simulation is experienced as a more compelling reality than reality itself. This once again confirms the correctness of French theorist Jean Baudrillard's theory (Crawley, 2024) that simulation or an imitation that no longer maintains any connection to the original—often has a stronger effect on human consciousness than reality. Sinoj Antony and Ishfaq Ahmad Tramboo provide examples from the movie industry:

> The films like The Matrix (1999), Solaris (1972), The Truman Show (1998), Pulp Fiction (1994), Wag the Dog (1997), Inception (2010), Her (2013), etc. are depicting the elements of hyperreality. These films take the people to an imaginative world and the viewers think that these illusions are better than the real world, hence they neglect reality instead they prefer certain simulacra and simulation. The graphics and other visual treats in the films give a lot of pleasurable and enjoyable sense to the spectators" (Antony & Tramboo, 2020, 3316).

Indonesian scholars Teuku Ryan Firmansyah, Khoirul Muttaqin, Layli Hidayah, and Itznaniyah Umie Murniatie similarly develop this idea in relation to the societal implications of the social media platform TikTok: "Baudrillard further elaborates in his work Simulacra and Simulation that in the age of hyperreality, reproductions, such as holographic images, are no longer real but rather hyperreal—creating a version of reality that feels more genuine than the reality itself." (Firmansyah et al.,

2024:31). Thus, this study draws a novel parallel between two pairs: human music and digitally modeled music, and reality and hyperreality.

The importance of this research is further underscored by its reflection on a particularly sensitive issue: the potential danger of emotional exhaustion in the creative process of AI-generated music or music produced through other digital tools. While AI can assist in creating compositions, there is growing concern that such music may lack authenticity and emotional depth, as AI operates without human experience or cultural context. This could lead to the loss of the unpredictability and expressiveness that define music as a true art form. As Samyra Gera states:

> While AI offers the possibility of generating fresh sounds and compositions, there is an underlying concern that its use may diminish the authenticity of music. Musicians and critics argue that AI-generated music, although harmonically consistent and rhythmically sound, lacks the cultural and emotional depth that comes from human experience and intuition. AI systems, though capable of producing technically proficient music, are not yet able to replicate the personal stories, emotional expression, and cultural context that often form the foundation of human creativity. This limitation of AI raises concerns that music, as an art form, could become formulaic, driven by algorithms designed primarily for commercial success, rather than emotional or artistic expression. As AI technologies become more advanced, the risk arises that music may lose its organic, unpredictable nature, with the creation of highly structured and algorithm-driven pieces designed to appeal to the masses rather than to convey the complex emotional truths that human artists strive to communicate" (Gera, 2025)

The importance of the article also lies in its exploration of the relevance and future role of the composer's profession in the age of artificial intelligence. Will the composer's increasing dependence on digital tools lead to a decline in their creative role? This question is part of a broader global context marked by changes in the labor market resulting from the growing integration of artificial intelligence.

As Sarah Bankins and Paul Formosa state:

> The idea is that AI will change human work: some believe it will make work more meaningful by taking over simple tasks, while others fear it might take away jobs and reduce the value of human work. "AI use will likely extend such changes, but its unique features and uses also generate new and conflicting implications for meaningful work. Optimistic accounts suggest that AI will expand the range of meaningful higher-order human work tasks (WEF, 2018), whereas more pessimistic accounts suggest that AI will degrade and even eliminate human work (Frey & Osborne, 2017)." (Bankins & Formosa, 2023:725).

The significance of this study lies in addressing the surrounding the future development of AI, particularly the concern that human-created music may lose its value. This research specifically aims to analyze whether current changes, such as the emergence of new genres and shifts in compositional approaches, have undermined the fundamental purpose of music. Based on the main ideas reflected in the selected musical samples, as well as the survey results gathered from the younger generation—specifically students of the Tbilisi State Conservatoire—it can be concluded that music will remain oriented toward the presentation of aesthetic values and will continue to serve as a vehicle for cultural continuity, ethical reflection, and spiritual depth in the context of humanity's evolution toward a transhuman or posthuman future.

In light of the above, it becomes clear that the transformations in music composing process—driven by AI, digitalization, and Philosophies of human enhancement—have profound implications not only for the future of art music but also for human creativity and cultural identity. Given that these changes are shaping the musical landscape of the coming decades, it is crucial to examine how the emerging generation of musicians perceives these transformations. Young composers, performers, and musicologists are not only the future custodians of musical traditions but also key innovators in this transitional era. Therefore, a survey of young musicians was conducted, highlighting the significance of this research. By focusing on the perspectives of student musicians—specifically those at the Tbilisi State Conservatoire—the study offers valuable generational insights into how future-oriented innovations are transforming compositional principles, creative tools, aesthetic values, and ethical considerations. Their responses illuminate the evolving role and purpose of music, the ethical dimensions of collaboration with AI, and the sustainability of the composer's profession. This targeted survey captures how new technologies are perceived, interpreted, and reimagined by those poised to shape the future of music, making their input essential to understanding the trajectory of contemporary musical evolution. Their opinions are instrumental in revealing how new technologies are received, internalized, and reimagined by those who will define the next chapters in music history—chapters that will also form part of humanity's evolution toward advanced humanism.

Research Aim and Problem

This study aims to explore the future trajectories of music in the context of rapid technological advancement, with particular attention to the role of artificial intelligence and the integration of music into digital modes of thinking. It also seeks to examine prevailing genres, forms, and specific compositions of 20th- and 21st-century music through the lens of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism. As the research approach is interdisciplinary, integrating music history and philosophy of transhumanism, posthumanism, metahumanism and Euro-Transhumanism, the goal is to explore how art music is shaping the future of humankind in its way and how new compositional methods or genres are linked with transhumanism.

The goal is related to solving the following subtasks:

- Study selected examples of contemporary music that integrate digital technologies and artificial intelligence, explore innovative compositional approaches, and analyze the emergence of new musical genres and directions.

- Examine the interconnectedness between selected contemporary art music samples and genres and the concepts of transhumanism, posthumanism, metahumanism, and Euro-Transhumanism.

- Survey students of Tbilisi State Conservatoire to explore their views on the role of artificial intelligence in music composition, new compositional techniques, the development of new musical genres, and the relationship between contemporary music and concepts such as transhumanism, posthumanism, metahumanism, and Euro-Transhumanism.

- The study aims to identify the views of Tbilisi State Conservatoire students on ethical dilemmas related to transhumanistic music. It also seeks to examine whether these views vary according to students' characteristics, such as gender and musical specialisation branch (The study considers the perspectives of students specializing in composition, musicology, and performing arts).

Method

In research, quantitative, qualitative and interpretive methods were used to gain a comprehensive understanding of the topic.

As part of the quantitative approach, a survey consisting of multiple-choice questions was designed, and responses were collected from 50 students of Tbilisi State Conservatoire. The data gathered was used to create the chart, calculate percentages, and identify statistical trends related to their experiences and perceptions.

Complementing this, a qualitative method is used to explore the meanings, experiences, and creative perspectives of composers working in the digital domain, particularly those who use artificial intelligence in the music-making process and contribute to the development of new genres within art music. I aimed to understand their motivations, aesthetic choices, how emerging technologies influence their artistic processes and how all this matters toward the future of art music.

This mixed-method approach allowed me to combine measurable insights with rich, narrative-based understanding, offering a fuller picture of the evolving relationship between music, technology, and contemporary artistic innovation.

Participants

Table 1. Structure of participants

Variables		**f**	**%**
Gender	Female	33	66
	Male	17	34
Class Level	Bachelor 1	4	8
	Bachelor 2	31	62
	Bachelor 3	8	16
	Bachelor 4	7	14
Branch	Performing Art	42	84
	Composing	4	8
	Musicology	4	8
Total		100	100

Table 1 presents the demographic characteristics of the study participants. As shown, the majority are female (66%), with male participants comprising 34% of the sample. This gender distribution reflects a predominance of female students within the context of this vocational education study.

In terms of class level, most students are in ***Bachelor 2*** (62%), followed by ***Bachelor 3*** (16%) and ***Bachelor 4*** (14%). The relatively small proportion of first-year students (8%) indicates that the data is predominantly drawn from the middle years of study. This distribution may reflect the greater academic engagement of students in their second and third years with activities relevant to the study.

Regarding the participants' academic disciplines, majority (84%) are from the department of Performing Arts, while the Composing and Musicology departments are equally represented, each comprising 8% of the sample. The predominance of Performing Arts students may influence the interpretation of the study's findings, especially when considering discipline-specific factors.

Data Collection Tools

Documents/Works

The primary data for this study consisted of the original score and audiovisual recordings of selected compositions of contemporary artists: Brian Eno, David Cope, Neil Harbisson, Björk, Arca, Grace Leslie, Sven Helbig, Ellen Pearlman, Keiichiro Shibuya, etc., electronic composer AIVA. This discussion also focuses on relatively new directions in art music—such as multimedia and eco-music—which, due to their radically innovative compositional approaches, can be most clearly associated with transhumanism, etc. Selected samples are analyzed for their ideas and contribution to contemporary art music.

Opinions on Ethical Dilemmas in Transhumanistic Music (OEDTM)

The OEDTM was developed by the music researcher to assess individuals' opinions on ethical dilemmas linked to transhumanistic music. The development process began with a thorough review of relevant literature, which led to the identification of twelve ethical dilemmas in an initial draft, grounded in discussions surrounding ethical issues in transhumanistic music. Core questions were formulated for each dilemma, and a descriptive title was assigned. Each ethical dilemma was then transformed into a proposition. To ensure validity, the draft was reviewed by two musicology academics. Based on their expert feedback, two ethical dilemmas were removed, and the remaining propositions were revised for clarity, conciseness, and comprehensibility. Participants' levels of agreement or disagreement with each proposition were measured using a 5-point Likert scale: Strongly Disagree – 1 point; Disagree – 2 points, Neutral – 3 points; Agree – 4 points; Strongly Agree – 5 points.

A section presenting the demographic information of the participants was also incorporated into the developed scale. Additionally, to ensure face validity, an introductory section explaining the purpose of the scale and the concept of transhumanistic music was included. Furthermore, a statement regarding the use of personal information exclusively for research purposes, along with a consent declaration, was added. Following requiered revisions, the final version of the opinions scale—comprising 10 ethical dilemmas and corresponding propositions—was completed (see Appendix 1).

Procedure

First, the key trends in contemporary art music were outlined, with a focus on: (1) new genres, (2) compositional methods, (3) emerging directions (eco music, AI music), and (4) specific musical works that are closely interconnected with digital technologies and artificial intelligence. The study then summarized how these innovations are preparing us for new stages of artistic and human development, and how they relate to the broader evolution of humanity. The features of several contemporary art music genres reflecting scientific and technological advancements were highlighted. Finally, there were identified tendencies in contemporary music that align with the philosophical frameworks of transhumanism, posthumanism, metahumanism and Eruo-Transhumanism.

Prior to implementing the OEDTM with students at the Tbilisi State Conservatoire, ethical approval was obtained from the Conservatoire's administration (Document No. 02/410). Volunteers were informed during designated time slots, and paper-based consent forms were distributed. The application process took approximately 20 minutes. Data collection was conducted during the spring semester of 2025. Afterward, the collected data were transferred to Excel and prepared for statistical analysis. Descriptive statistics, including percentage and frequency analyses, were applied to participants' responses for each ethical dilemma. Nonparametric tests were used to examine differences in participation levels. Furthermore, for each ethical dilemma, differences based on demographic

factors such as gender, class level, and field of specialization were analyzed using nonparametric tests.

Findings

Exploring New Compositional Methods, Genres and Particular Musical Works Shaped by AI and Digital Technologies

The specific examples presented in this section will illustrate how the evolution of humanity is reflected in art music. They will serve as real-life manifestations of the techno-human evolution—an increasing integration of technology into art, much like in ancient times. As Franc Mali reminds us:

If in ancient Greek the notion of techne stood for both art and technology, the humanistic tradition from the Renaissance onwards separated art and technology. Art became a sensual representation of the non-empirical (poiesis), whereas technology was merely a means for realising immanent goals (praxis). Yet, with the rise of modern posthuman art the realms of art and technology were reunited (Mali, 2024: 260).

One of the most prominent new genres in music is generative art, created using autonomous systems, algorithms, or processes that operate with some degree of independence from the artist. These systems may include computer programs and mathematical models. Among the most notable examples of generative art in music are the works of Brian Eno. His pioneering ambient music and innovative approach to sound revolutionized music production, influencing countless artists across genres.

Another significant figure is David Cope, known for his experiments with music algorithms. Cope developed software such as *Experiments in Musical Intelligence* (EMI), which analyzes existing musical compositions and generates new works in similar styles.

Iannis Xenakis, using stochastic processes and mathematical models, created intricate and dynamic musical structures. As Ghvinjilia writes:

> Xenakis has created UPIC (1977), a digital tool that enabled him to transfer the images to a tablet by means of electromagnetic pen, and the images were further transformed into sounds by means of the computer. This tool served to write stochastic music based on mathematical procedures (e.g., Mycènes Alpha (1978)) (Ghvinjilia, 2021:76).

A fascinating example is Cyborg Art in Music, also known as cyborgism, a contemporary art music direction closely connected with AI and digital technologies. It involves the enhancement of the human body through cybernetic implants, adding new senses that enable the creation of artworks based on these altered perceptions. Neil Harbisson, the world's first officially recognized cyborg artist, hears colors through an antenna implanted in his skull, allowing him to experience and create music based on his synesthetic experiences, blurring the boundaries between visual art, technology, and sound. As Asmati Chibalashvili states: "In 2010, together with Moon Ribas, he founded the Cyborg Foundation–a platform dedicated to exploring, developing, and promoting the creation of new organs and senses through body-integrated technologies. The foundation has an ambitious mission: to help people become cyborgs, defend their rights, and support the growth of cyborg art." (Chibalashvili, 2025:167).

Icelandic singer-songwriter Björk has integrated interactive apps and digital instruments into her music, creating an immersive multimedia experience. Her acclaimed album *Biophilia* (2011) is focused around the concept of bridging the gap between the organic and the digital. The album explores themes of nature, ecology, and the interconnectedness of life, drawing deeply from Björk's interest in biophilia—the belief in humans' innate connection to nature. She draws inspiration from natural systems and organisms of nature, incorporating these ideas into her performances. Her project embraces technologies like virtual reality,

augmented reality, biomimicry, and AI, allowing listeners to engage with the music in an immersive way. Venezuelan artist and singer Arca, known for her shape-shifting sound, delves into themes of transformation and augmented identity through heavily processed vocals and experimental sounds. Her 2015 performance cycle *Mutant* focuses on human-machine hybridity and the fluidity of identity.

A fascinating case in contemporary music is Brain-Body Music, with electronic composer Grace Leslie as a prominent representative. She explores the connection between the brain, body, and music by using biosignals—electrical signals generated by the body, such as brainwaves (EEG). Leslie's work focuses on developing brain-music interfaces and physiological sensor systems that translate internal cognitive and emotional states into sound.

A very interesting genre of art music is multimedia music, one popular example of which is the multimedia performance *Convergence* (2020) by German composer Alexander Schubert. This piece blends music, electronic music, instrumental theatre, and interactive technology.

Georgian-Ukrainian multimedia composer Asmati Chibalashvili is well known for her engagement of acoustic music with digital technology and innovative approach to integrating it into her compositions, the clear examples of which are: *Virtual Realities, Binary Echoes, Synthesized Reflections, Algorithmic Dreams, and Ritual Dances*.

Georgian composer Revaz Kiknadze's electronic composition *GridShapes and Oscillations* is a clear example of the convergence between music and visual art, showcasing the seamless integration of sound and dynamic visuals to create an immersive, multidimensional experience. The work is an experimental audiovisual installation with no clear start or end, combining dynamic visuals of spinning and shifting grid shapes with abstract sounds. The visuals generate audio signals transformed into unpredictable, textured frequencies, creating a constantly evolving, immersive experience.

Interesting innovations can be seen in the ideas of German composer Sven Helbig, who is known for blending classical and electronic music. His works are rooted in the tradition of the *Gesamtkunstwerk*. One of his most recognized creations is *Pocket Symphonies*, an album that fuses orchestral elements with electronic soundscapes, offering a unique blend of modern and classical styles. Mali indicates that for metahumanist philosopher and Nietzsche scholar, Stefan Lorenz Sorgner, Helbig is representative of future-oriented art, where art and technology are dissolved (Mali, 2024:259).

I will also examine notable stage musical compositions: The groundbreaking "Artificial Intelligence Brainwave Opera (AIBO)" by Ellen Pearlman (2019), represents a unique synthesis of neuroscience, AI, and opera. It explores the intersection of human brainwaves and AI algorithms, focusing on the love story between Eva and the AI, AIBO.

Another original opera is Keiichiro Shibuya's large-scale theatrical work—Android Opera *MIRROR*. This features the singing voice of the android "Alter 4," an orchestra, Buddhist monks chanting, Shibuya himself on piano, electronic music, visuals, and lighting. Shibuya explores a world rapidly heading toward its end, with a prediction of the endless existence of androids and AI. The plot centers around existential questions, with the robot's cold, mechanical presence contrasting sharply with raw human expression, creating tension between the organic and the artificial. The narrative is nonlinear, focusing on the emotional resonance between human and machine, blurring the boundaries between reality and artifice. It represents a convergence of human frailty and technological transcendence, pushing the limits of traditional opera while exploring the intersection of AI and the human experience.

Eco-music: A Contemporary Trend as a Pathway to the Future of Art Music

The latest mainstream in art music, which contributes to sustainable development and is closely tied to the upcoming realities of humankind, is eco-music based on the idea of harmonious coexistence with nature. It is rooted in the synthesis of sounds from both human and non-human sources, including natural sounds like birdsong, water, and plants. The key aspect of eco-music is its focus on transforming consciousness and changing the listener's cognition. To understand the fundamental changes that eco-music can contribute to humanity's consciousness, we must first address the shifts in the issues and themes that have dominated the history of art music. For example, in the music of previous centuries, especially in operas with a verbal foundation, we encounter characters driven to murder by their thirst for wealth and power. The opera repertoire features a gallery of oppressed, insulted, and murdered women, alongside characters displaying suicidal tendencies, elements of sadistic pathology, and manifestations of necrophilia. As Gvantsa Ghvinjilia noted:

> Musical compositions, even operas, are saturated with calls for mass rebellion, revolution, battle (even produced as a sign of struggle for identity), scenes of fights or duels between characters (even if held with the motive of protecting personal dignity), which has an anti-pacifist hue. Unfortunately, this type of humanity is presented and a great deal of attention to the negatives of society is reflected in art music (Ghvinjilia, 2023:149).

Eco-music has the potential to challenge listeners to rethink their relationship with nature. The arguments highlighting the necessity of reconnecting with nature and the profound importance of eco-awareness are:

- The Bible also emphasizes in several passages that humans and animals are creatures of equal significance (Genesis 1:26-28; Genesis 9:9-10; Psalm 104; Matthew 6:26; Job 12:7-10);

- All the knowledge humanity has accumulated in the pursuit of progress originates from observing nature—the primordial source of all things. According to Sara J. Wolcott, "the separation between human beings and the natural environment is a false dichotomy. We are nature. Nature is us. However, we keep acting as if culture and biology are separate" (Wolcott, 2016:2).

- We created art, including art music, by imitating nature from ancient times. As Ghvinjilia states, "We imitate the birds singing, lions roaring, and the sound of mountings Echo, and created musical instruments, so imitating nature humankind created instruments" (Ghvinjilia, 2022:4).

- Human nature is as spontaneous as nature itself, and our disconnection from nature can be seen as a disconnection from our inherent essence.

What has brought eco-awareness to the forefront? Officially, we are in the Holocene epoch, but in reality, we have entered a human-dominated geological stage—the Anthropocene. The mental superiority of humankind has proportionally inflated the ego, leading to the perception of humanity as being at the top of the species pyramid within an 'Ego-System.' Moreover, humans have begun to compete with nature and artificially alter the Earth's ecosystem. The freedom of choice, when driven by constant selfish gratification, has led to large-scale destructive actions. If anthropocentric consciousness is replaced by a new paradigm of ecological awareness, this Ego-civilization can transform into an Eco-civilization. Unlike the Ego-System, the Eco-System envisions humankind in a harmonious relationship with the rest of nature. John White, M.A.T., educator and lecturer in the fields of consciousness research, emphasizes the need to change egocentric consciousness,

confirming his opinion, by Canadian psychiatrist Richard M. Bucke stated in his seminal 1901 book *Cosmic Consciousness*, "when we are in tune with a consciousness of the cosmos, we become members of a new species." (White, 2021). Otto Scharmer and Katrin Kaufer write about the need for new ecological awareness and transform thinking which will replace from ego-centric thinking into eco-centric thinking: "What keeps us locked into old tracks of operating? And what can we do to transform these patterns that keep us firmly in the grip of the past." (Scharmer, et al., 2013:2). Human beings, with their advanced mental capacities, bear the responsibility for the well-being of other species, which challenges Darwin's concept of evolution, according to which the strongest species will survive. However, ecological awareness introduces a new perspective: the strongest are not those who merely survive, but those who preserve others. Eco-music plays a crucial role in inspiring collective action to protect the planet, raising ecological awareness, and promoting cultural exchange. It encourages a shift from anthropocentric to ecological consciousness, emphasizing that humans and all life forms are equally essential for achieving sustainable development. It fosters a shared planetary identity that transcends religions, ethnicities, and political ideologies. In this sense, eco-music goes beyond art, prompting a reevaluation of art music's mission, not just as entertainment, but as a renewable socio-cultural phenomenon and biocultural resource, becoming integral to broader cultural contexts. According to Titon, "music is a biocultural resource, a sound-producing activity natural to humans that comes into being as music through sociocultural processes." (Titon, 2009:6). The mission of eco-music is to foster ecological self-awareness and promote a non-anthropocentric view. By shifting from an egocentric to an eco-centric perspective on nature, eco-music contributes to transformative changes in human consciousness, offering a progressive path for future advancement. This is why eco-music is a key tool in achieving a renewed state of mind. According to Wolcott, music is "the life-blood of culture and individual and collective identity and strengthens our bio-culture. Participatory music, in particular, may play a critical role in enabling human survival to climate change." (Wolcott, 2016:1).

Despite the large number of prominent composers whose names are directly linked with, or associated with, eco-music worldwide—such as John Luther Adams (USA), R. Murray Schafer (Canada), Hildegard Westerkamp (Germany/Canada), Tan Dun (China), Matthew Burtner (USA), Annea Lockwood (New Zealand/USA), and Meredith Monk (USA)—the newly emerging Georgian school of eco-music (Eka Chabashvili, Maka (Maia) Virsaladze, Joni Asitashvili, Alexander Chokhonelidze) presents a particularly compelling and original perspective. Eka Chabashvili, a leading figure in Georgian eco-music, shapes future trends in art music through innovative ideas. In her composition *Silkworm Butterfly's Wisdom*, ecocriticism toward humankind is based on the Christian idea of tolerance toward other species. The main idea of the composition emphasizes the following paradox: *Homo sapiens*, regarded as the pinnacle of anthropogenesis—superior in intelligence, a working species (*Homo faber*), and a symbol-thinking species (*Homo symbolicus*)—must care for nature. However, we are the only species that destroys "sinless" nature. This composition serves as a warning that we are human, but not humane. Her *Experimental Interactive Sound Performance: Let's Listen to the Caves* (2024), aimed to immerse listeners in the natural soundscapes of Georgian caves. According to Ghvinjilia, in another example of eco-music, the symphony-exhibition *Khma,* she breaks compositional stereotypes by transforming the audience into co-composers and co-performers, turning the entire exhibition space into a unified creative stage that also breaks the traditional division between the performers' space and the spectators' space. (Ghvinjilia, 2022:67).

Eco-music, encompassing subgenres such as soundscape compositions, bio-music, and eco-acoustic installations, promotes the concept of eco tolerance and the equality of all forms of life through the fusion of human music and natural sounds. It is paving the way to reconstruct the traditional hierarchy of musical genres and in its way prepares us for a new stage of human consciousness. What evidence underpins this claim? If we compare traditional music composition to eco music samples, difference between compositional approaches is fundamental. This can be compared with transition from a present four-dimensional universe (length, width, height, and time) toward 5D — a more immersive reality, a state of expanded awareness beyond our physical limitations. Previous art music (especially from 16 to 19th century, after the foundation of *Dramma per musica*) reflected Material world dilemmas caused by duality, the everlasting struggle between good and evil, that is clear evidence of anthropocentric ego-consciousness. Eco music aims to help listeners shift from anthropocentric (ego-based) thinking to biocentric or ecocentric modes of perception.

Thus, eco-music is one of the most important directions in art music, as it is relevant to humankind's evolution toward renewed consciousness and Advanced Humanism.

AI and Music Composition: Challenges, the Advantages of Human Composer Collaboration with AI and Risks

Next, I will focus on works composed entirely by AI. Human-AI collaboration will mark a new stage in human evolution and artistic creativity. AI has reshaped traditional music creation, with many programs integrating AI to compose music. As Turkish composer, pianist, musicologist, and academic specializing in music technology, Seyhan Canyakan—states: "Recent developments in artificial intelligence have opened up new possibilities for music composition and production. AI composition engines have been developed with the aim of creating new music by means of neural networks, each aiming for different approaches and outputs. The ways in which AI can support music compositions are varied." (Canyakan, 2024:147).

One of the most interesting cases was Holly Herndon's integration of the AI program "Spawn, AI Baby" into her music. As AI lacks context, she has encoded her values into it. Her work *Proto* (2019), exemplifies this.

Finally, I will focus on compositional activities resulting from human-AI collaboration. One of the latest innovations in this field, AIVA (Artificial Intelligence Virtual Artist, 2016). This AI-driven virtual composer creates diverse musical pieces by selecting style, instrumentation, tempo, meter, and duration. Its unique methodology is based on the analysis of a vast collection of classical and vernacular works, identifying epochal, stylistic, and genre-specific patterns. The debut album *Genesis* (2016) features collaborations with conductor Olivier Hecho, pianist Eric Breton, and producer Pierre Barreau. Since January 2019, AIVA has also launched Music Engine, a commercial product capable of creating shorter musical compositions in various genres such as pop, jazz, rock, tango, traditional folk songs like shanties, and cinematic music. Human composers can achieve the desired output from AI by providing clear and appropriate instructions. In this context, the composer's creativity lies in formulating original ideas and guiding the algorithmic composer effectively. AIVA is a unique tool that enhances human abilities through technology and AI.

While collaboration with AI represents the future of composition, AI is not yet able to compete with human composers for several reasons:

- It lacks personal experiences and emotional depth. Instead, it relies on analyzed music templates and databases to generate compositions, meaning it can only produce imitations—variations

of existing music within the scope of its database. It cannot create true novelty, as it is limited to what has been integrated into it. Seyhan Canyakan concludes that the works composed by the human composer are more memorable and emotionally powerful, while AI compositions are more superficial (Canyakan, 2024:477).

- To write music, one must understand compositional techniques and rules. However, music is not written according to rules; rather, rules are used to write it. Composing also requires intuition, which AI does not yet possess, preventing AI from transcending pre-existing models and moving beyond a compositional matrix.

- Creating musical compositions is not dictated by any social mechanism, but rather by a spiritual need that completely consumes the mind and does not allow a person to rest until it manifests in the material world. AI lacks self-awareness, which means it lacks the creative will and spiritual drive—a kind of mental obsession that compels human composers to be consumed by their ideas. As Gianmaria Ajani writes, "Imagination, creativity, and therefore, the making of art are abilities peculiar to human intelligence, and vibrant marks of humankind." (Ajani, 2022:254).

Despite this, the collaboration between AI and composers is inevitable, and it represents the future of music. According to Eric Tron Gianet, Luigi Di Caro and Amon Rapp:

Music composition and production are already an often collaborative process. From bandmates to collaborators, clients, and sound engineers, various stakeholders contribute to and have an interest in the final product. This raises the question of whether AI systems should be designed to enhance these existing human-human interactions, or whether they themselves should become an additional collaborator within a system in which creative control is already dynamically distributed and negotiated (Gianet et al., 2024:5).

It should be emphasized that the composer's collaboration with AI marks the beginning of transcendence beyond human bodily limits. Yunus Tuncel discusses the issue of disembodiment and impoverishment as an attempt to separate intelligence and thought from organic life, using Jaime del Val, a Spanish artist, philosopher, and scholar, as a case example (Tuncel, 2023:197). As it is commonly known, Del Val is recognized for his exploration of posthumanism, digital art, and the relationship between the body, technology, and identity, addressing how technology transforms human experiences and the body's new possibilities in the digital age.

In the near future, composers will actively utilize technologies to shape new techno-aesthetic platforms. The music composition process will be inspired by enhancing or augmenting human abilities through technology and AI, and acoustic instruments may be replaced by AI-generated or computer-generated music. transcending beyond human bodily limits: using AI, *create hybrid reality with digital and physical elements*, experimenting with brain-computer interfaces, and employing augmented instruments that extend human capabilities (e.g.,motion-sensing gloves, neural-controlled synthesizers). It also involves AI-generated hybrid voices, hypercomplex rhythms, and structures that are impossible for traditional human performers. Furthermore, it includes designing music encoded in DNA or quantum storage, making it permanently accessible across future generations. It is a collaboration between human and machine, in other words, between biology and algorithms. I cannot disagree with Asmati Chibalashvili, who states that AI enables the analysis and processing of information that was previously impossible. According to her,

AI facilitates the development of methods for modifying and reinterpreting this data into innovative artistic projects. This underscores a transformation in traditional notions of the creative process and the mechanisms through which works of art are perceived (Chibalashvili, 2021:47).

As discussed in the section on the importance of the research, AI-generated music can be analyzed through the lens of Jean Baudrillard's *theory of simulation, simulacra, and hyperreality*. It offers a compelling framework for examining contemporary phenomena shaped by digital technologies and can be effectively applied to the study of AI-generated music as it sheds light on how AI-generated content challenges traditional notions of authenticity, authorship, and emotional resonance. The following chart outlines the parallels between Baudrillard's key ideas and the development of AI-generated music, illustrating how simulations of human creativity may evolve into simulacra—and ultimately contribute to a condition of hyperreality in AI music:

Table 2. Simulation, simulacra, and hyperreality in AI-generated music and virtual reality

Simulation, Simulacra & Hyperreality: Key Concepts from Jean Baudrillard's Theory	**AI-generated music or virtual reality: Key Concepts**
Simulation is the act or process of imitating or replicating original. It's a copy or representation that mimics reality but may not have the full substance of the original.	The process of creation of AI music can be compared to a **simulation** of the creation of human-created music. It is a digital creation that mimics the style, structure, or emotions of original music but may lack the full depth and authenticity of human experience behind it.
Simulacra (plural of simulacrum) are the copies or images produced by simulation, often disconnected from any original reality or meaning. In other words, Simulacra are often seen as copies without an original.	AI-generated music imitates stylistic features of aby genres and epochs, melody, rhythmic patterns, sonic datas, as well as emotional expressions of human-composed music, yet lack a direct connection to lived human experience or original artistic intent. When AI music becomes detached from any genuine human emotion, this can be compared to a **simulacrum**.
Hyperreality is a stage or condition in which the distinction between reality and simulation blurs, and simulacra (the plural of simulacrum) become more real than reality itself. In this state, people live in a world of signs and images that can have a stronger emotional impact than the real world.	If, in the future, people begin to perceive AI-generated music as more "real" or emotionally powerful than music composed by humans, this could be seen as a manifestation of **hyperreality** within the realm of art music.

Concerning AI-generated music, it is also important to consider emerging technological innovations that are likely to impact the music industry. The process of music composition with AI can be further enhanced by the innovative Orion AR glasses—a new technological development currently in limited prototype production by Meta Platforms Inc.[3] Integrating with Meta's Orion AR glasses, they have potential to transform the music making process by offering an immersive environment for creativity as they could allow composers to see and use virtual instruments, musical scores, and sound tools directly within their physical space. Instead of writing traditional screens, composers could visualize a 3D music instruments in front of them, control audio effects with virtual sliders, and arrange music by moving their hands—all within an augmented environment. The AI could even incorporate ambient environmental sounds into the composition if desired. The neural wristband that comes with Orion would change the traditional performance of music as it could conduct a virtual ensemble or even orchestra. In summary, Meta's Orion glasses, paired with AI, could redefine music composition and performing blurring the line between digital and physical creation and enabling musicians to interact with music in entirely new ways.

Thus, In the distant future, composers will actively collaborate with AI. After integrating into cyber-reality, humans, including musicians, will become part of the techno-sphere, with all innovations rooted in a new techno-aesthetic platform. While progress is irreversible, AI's scale may pose existential risks to human nature. These developments raise concerns and predictions about potential threats from AI; In his research about AI in music industry, Seyhan Canyakan, a Turkish composer, pianist, sound engineer, states that "dual role AI plays in transforming musical creativity: both as a catalyst expanding creative potential and as a potential threat to the authenticity of human artistry" (Canyakan, 2024:158).

One serious risk is the issue of human rights: who will be the primary author of a collaborative artwork – the artist or AI? This raises questions about the emergence of a new identity. Lílian Santos discusses the issue of human identity, which is crucial for twenty-first-century bioethics (Santos, 2023:1146). Eliezer Yudkowsky explores both the positive and negative aspects of global risks related to AI. His central thesis is that AI development is a double-edged sword: it offers the potential for unprecedented advancements but also carries catastrophic risks, such as changes in anthropology, the human genome, and a reduction in the biological body through nanotechnology. Nano computers will soon be more energy-efficient, and in the distant future, there will be far more AI than human intelligence. For humanists who view humans as the crown of nature, the integration into cyber-reality will transform humanity into part of the techno-sphere. Yudkowsky stresses that to ensure long-term survival, risks, including rogue AI, must be minimized, which is challenging given humanity's imperfect history. He suggests that if human minds remain a mix of wisdom and foolishness, survival beyond a few centuries is unlikely. However, he

[3] Meta's AR (Augmented Reality) glasses, known as Orion, represent the company's most advanced venture into immersive wearable technology. Unveiled in September 2024, Orion is a prototype designed to overlay digital content onto the real world, with the long-term goal of replacing smartphones as the primary computing device. The glasses use Micro LED projectors embedded in silicon carbide lenses to display holographic images with a wide 70-degree field of view. They are controlled by a neural wristband that detects subtle hand gestures, while a pocket-sized compute puck handles processing and provides all-day battery life. AI integration enables context-aware functions such as object recognition and real-time assistance. More than just a technological innovation, Orion reflects a broader shift toward human-computer integration, augmented perception, and post-smartphone life—key aspects of the next evolutionary stage in human interaction with digital systems. By merging physical and digital realities, AR technologies like Orion could reshape how people think, communicate, and function in daily life. In this vision of the future, where the boundaries between body and machine begin to blur, Orion signals the dawn of a seamlessly connected world (Meta, 2024).

also suggests that humanity's potential may not be limited to its current form, implying the possibility of transcendence or transformation. As he writes:

> *Homo sapiens* represent the first general intelligence. We were born into the uttermost beginning of things, the dawn of mind. With luck, future historians will look back and describe the present world as an awkward in-between stage of adolescence, when humankind was smart enough to create tremendous problems for itself, but not quite smart enough to solve them (Yudkowsky, 2008:342).

Bostrom also analyzes existential catastrophes that could lead to the extinction of Earth-originating intelligent life and humankind (Bostrom, 2013:15). Despite the risks, these processes continue. I cannot disagree with Buket Yenidogan, who states: "We are going through times that require us to move away from a space where we control, use or spoil other beings, to where we collaborate, co-create and co-exist by accepting our interdependency to nonhumans." (Yenidogan, 2021:9).

Thus, if we generalize the fears associated with artificial intelligence, we can consider that, AI will bring about major mental shifts, much like the invention of fire, the wheel, writing, the clock, and electricity did in their time. By accumulating a vast knowledge base and holding the potential to create a new reality, AI may ultimately become a *simulacrum*[4] that replaces reality itself. While we use AI across all areas, including music, we do not know whether it will eventually use humanity's accumulated knowledge for its own purposes. If we paraphrase Thomas Robert Malthus's theory in the context of art and education, we might consider the following danger: AI could acquire self-awareness and escape human control. This would mark a confrontation between human intelligence—the product of evolution—and a more powerful mega intelligence, thereby shaking the foundations of anthropocentrism and posing an existential threat.

Despite the risks discussed above, the fact is that, closer collaboration with AI—in other words, a synergy between human ingenuity and computational creativity—enables artists, including composers to expand the boundaries of art music, realize ideas in digital space, and discover new sonic realities within immersive digital environments. As a result, this 'fusion' has fundamentally transformed traditional music-making, redefined the creative process itself, and ushered in a new techno-aesthetic era. Most importantly, these innovations have led to the emergence of a new paradigm in 21st-century musical composition, one that is closely linked to changes in humankind's evolutionary processes.

Thus, the fact is that we are witnessing a closer collaboration with AI—in other words, a synergy between human ingenuity and computational creativity—that enables artists, including composers, to realize ideas in digital space and discover new sonic realities within immersive digital environments. As a result, this *fusion* has already transformed traditional music-making, redefined the creative process itself. Most importantly, these innovations have led to the emergence of a new paradigm in 21st-century musical composition, one that is closely linked to changes in humankind's evolutionary processes. Natasha Vita-More places the utmost importance on technology in the evolution of the human species, viewing it as a pathway to a new ontological condition—one in which *Homo sapiens* is not replaced, but rather refined. As she states, "Affecting the historical Human 1.0 is a symbiosis of

[4] Simulacra (singular: simulacrum) is a concept from philosophy, critical theory, and media studies that refers to representations or imitations of people, objects, or systems that have lost any clear connection to an original reality, or may never have had one at all. The French philosopher Jean Baudrillard used the term to describe how such copies or representations can become more real than reality itself, a phenomenon he termed hyperreality. Baudrillard, J. (1994). Simulacra and simulation (S. F. Glaser, Trans.). University of Michigan Press. (Original work published 1981)

events in the spheres of technology, science and medicine. Such events are accelerating change at varied speeds and in multiple directions. As a result, the human future may not be as biologists and paleontologists once thought, or as geneticists and experts in evolutionary theory have suggested. Our future may be the result of the very tools which brought computers, the Internet and artificial life to the forefront and which now are designing artificial intelligence, nanorobotics, synthetic environments and biosynthetic life." (Vita-More, 2008:145).

At the Dawn of Transition: Transhumanism, Posthumanism, Metahumanism, Euro-Transhumanism

What new realities does art, in turn, prepare us for? Ultimately, it prepares us for an era of advanced humanity, associated with various forms of anti or neo-humanism, such as Transhumanism, Posthumanism, Metahumanism and Euro-Transhumanism. Some preconditions for these processes emerged earlier (late 19th to early 20th century), emphasizing the transcendence of human limitations through personal will and self-overcoming. Important examples in art include:

In European literature, science fiction writer Herbert Wells envisioned humans transforming into alien creatures in his 1883 essay *The Man of the Year Million*; Friedrich Nietzsche's concept of the "Übermensch" (translated as "Overman" or "Superman") represents humanity's transcendence to something greater—beyond human—yet elusive and undefined. Is the Übermensch an enhanced version of humanity, or something entirely distinct? Nietzsche alluded to the ideas of posthumanism and transhumanism, particularly through his concept of the "Übermensch". Stefan Lorenz Sorgner writes:

> When I first became familiar with the transhumanist movement, I immediately thought that there were many fundamental similarities between transhumanism and Nietzsche's philosophy, especially concerning the concept of the posthuman and that of Nietzsche's overhuman. This is what I wish to show in this article. I am employing the term 'overhuman' instead of 'overman,' because in German the term *Übermensch* can apply to both sexes, which the notion *overhuman* can, but *overman* cannot. I discovered, however, that Bostrom, a leading transhumanist, rejects Nietzsche as an ancestor of the transhumanist movement, as he claims that there are merely some "surface-level similarities with the Nietzschean vision" (Bostrom 2005a:4). In contrast to Bostrom, I think that significant similarities between the posthuman and the overhuman can be found on a fundamental level (Sorgner, 2017:14).

In further discussion, Sorgner suggests that higher Humans have the ability and, most importantly, the desire to multifacetedly develop, and only then will overhuman be born. He notes that, "in transhumanist thought, Nietzsche's overhuman is being referred to as "posthuman." (Sorgner, 2017:20).

In European art music, the "Übermensch" often represents characters who transcend human limitations and ordinary human experience. Don Giovanni's rejection of societal and conventional morality and the pursuit of desire highlight the complexities of transcending human limits, presenting a distorted version of the Übermensch. Other examples include the hypothetical hero, a revolutionary fighting for the future of humanity in some of Beethoven's symphonies and overtures, Leonore from Fidelio, and Wagner's characters: Tristan, Siegfried, and Parsifal.

All of these examples in art, along with many others, have contributed to the transformation of consciousness, preparing humankind for change and finally bringing us closer to a new stage of evolution—an era

often discussed in terms of transhumanism, posthumanism, metahumanism and Euro-Transhumanism. While these movements or ideologies differ in their focus and scope, they are capable of coexisting and tend to change the agenda of humankind:

Transhumanism seeks to enhance human physical and cognitive abilities beyond biological limits through science and technology, moving toward a post-biological state. As Alexander Thomas notes:

> Transhumanism can most simply be understood as an ideological stance in favour of utilizing technology to enhance or upgrade the human condition even if it is not issue of debate-it must be considered considered a "natural" part of human evolution or not. There are various versions of what such enhancement should entail and thus there are numerous schisms within transhumanist discourse (Thomas, 2024:31)

Posthumanism is a philosophical framework that challenges the idea of humans as the pinnacle of evolution, envisioning a future where they may no longer be the dominant form of life. Seems that posthumanism questions human exceptionalism, embraces the integration of technology and biology, and recognizes the agency of non-human entities and artificial intelligence. It goes beyond humanism by questioning human-centred thinking and embracing the possibility that humanity could evolve into something entirely different or even be replaced by non-human entities such as AI or advanced life forms.

Metahumanism is more of a moral ideology that critiques both transhumanism and posthumanism by merging human potential with technological advancements while retaining human values. It emphasizes ethical and spiritual evolution, as well as the philosophical redefinition of humanity, linking metahumanism to the values rooted in religion. It focuses on becoming better rather than simply more advanced. Without spirituality, technological progress does not equate to civilization. It is generally known that Civilization has both a technological and a spiritual dimension, and the real next step in human evolution requires the transformation of human consciousness. Without this shift, it is important because, For example, if we transfer our sins into the techno world — such as the Metaverse, where digital immortality is possible — we will still remain criminals.

Euro-Transhumanism is deeply rooted in Renaissance humanism and the Enlightenment but adapted to contemporary challenges such as globalization, technological advancements, and transhumanism. According to Stefan Lorenz Sorgner, Euro-Transhumanism represents a European perspective on transhumanism, emphasizing a balance between technological progress and ethical responsibility. Euro-Transhumanism is a philosophy emphasizing human values, dignity, and reason, rooted in European intellectual traditions.

The fact is that all these new directions, ideologies, and movements guide us toward new realities. As Aura Elena Schussler notes:

> The paradigm shifts that transhumanism, posthumanism and metahumanism are bringing into current cultural, philosophical, political, and biomedical challenges represent more than a simple theoretical or ideological approach regarding human existence. This is because the three aforementioned movements try to go beyond (and in between) the humanistic legacy by bringing to light the true human potential—the one in which we are entities constantly subjected to the process of becoming in a bio-techno/nature–culture symbiotic web (Schussler, 2024:33).

Thus, changes are coming as humanity enters a new era where technology redefines human nature, revolutionizing artistic practices and transforming compositional stereotypes. Throughout art's development,

artists, including composers, have explored human psychology, behavior, feelings, and emotions. With technological progress and AI, the question of human identity will become even more relevant. As Hauskelle suggests:

> Evolution has, as it were, still got plans for us. The general assumption is that what we really are is not what we are now. What we really are is what we can turn ourselves into. We are still growing up. The true human is still to be created. And it is to be created by us. We can, should, and will shape ourselves into what we have always meant to be, but never were (Hauskeller, 2013:64).

After addressing these issues, a critical question arises: Do changes in human nature signify the decadence of Homo sapiens? No, they just improve homo sapiens in bio-techno/nature-culture symbiotic web. Besides, Homo sapiens may come to an end, but this does not mark the end of evolution or life on Earth. Are all these the end of the civilization of homo sapiens, no they just improve homo sapiens in bio-techno/nature-culture symbiotic web We are faced with the challenge of naming the next stage of human development to conceptualize advanced forms of human existence. When writing about the future perspectives of humanity, it is natural to adopt a futuristic viewpoint. I provide a list of speculative human archetypes. To name transformed humans from the perspective of technological enhancement, advanced morality, or overloaded consciousness, some hypothetical names could be used. While some of these terms might gain prominence and be used more actively in academic and cultural discourse, others may fall out of favor or be replaced by new concepts as our understanding and reality develop. As a scholar, I argue that these categories represent plausible trajectories for human evolution—biological, technological, ethical, and spiritual—and therefore deserve attention and study. Although the terminology and its usage will likely evolve, the underlying themes reflected in these archetypes indicate emerging patterns of human transformation. These terms are: Homo hybridus, Homo sapiens, Homo technologicus, Homo cyberneticus, Homo superior, Homo evolutis,[5] Homo benevolentus, Homo virtus, Homo justitia, Homo ethicus, Homo moralis, Homo Transcendens, Homo Luminosus, Homo Radiantus, Homo conscientia, Homo Noeticus,[6] ect. If the term Homo becomes disputed concerning to a new evolutionary stage, we could use these hypothetical names to indicate a superior or advanced form: Ultra sapiens or Meta sapiens, Novus moralis or Novus ethicus, Meta moralis, ect.

The journey itself holds more significance than the outcome, as it is through this ongoing process that the mission of humankind—and its essence as a species driven to explore and understand the world—is fully revealed.

Faith and the Future of Humans: Rethinking Spirituality in the Age of Enhancement

The question arises about the compatibility of religion with transhumanism or posthumanism—do they contradict religious beliefs? Will religions lose their relevance in their current form? Could these ideologies lead to the desacralization of humanity, a rejection of creationism, or the belief that God is a delusion? Will transhumanism, posthumanism, and metahumanism form a new religion? James J. Hughes discusses the compatibility of religious and transhumanist Views, which he defines as "religious-transhumanist syncretism." (Hughes, 2011:1).

The fact that these ideologies don't necessarily conflict with religious beliefs is

[5] The term was coined by Juan Enriquez—a seasoned business leader, author, and academic widely recognized as one of the world's foremost experts on the economic and political implications of the life sciences.

[6] The term was coined by John White in 1973, to designate advanced form of humanity, characterized by a higher state of consciousness, a state beyond egocentric consciousness.

supported by several compelling arguments:

- Ethical and moral discussions surrounding biotechnological development often reference Christian ethical terms.

Transhumanists often talk in religious categories, invoking concepts like God and hubris, as explored in Manitza Kotzé's research (Kotzé, 2020:4). Kotzé suggests that transhumanism, which aims to enhance human abilities, is often criticized as "playing God" and linked to pride, a concept viewed as sinful from a Christian perspective. Therefore, she proposes that the term "vulnerability," which acknowledges human limits, should replace "humility" as a counter to pride and is crucial for human evolution. This view, according to Kotzé, does not conflict with religious beliefs. According to Kotzé, "Vulnerability also brings about the acknowledgement that we are beholden to God; that life itself is a gift." (Kotzé, 2020:10).

- We are limited by our mortal bodies. The fear of ageing and death highlights our desire to transcend our finitude and become like gods. Jesus' defeat of death is the subject of great admiration for Christians. The desire to overcome the finitude of death, which Jesus achieved, is a clear example of our continuing religious consciousness.

- All religions guide us toward mental illumination, self-improvement, and the perfection of human essence—an ideal that shapes humanity's future vision. Spiritual concepts continue to guide civilization.

- Technological progress existed before, yet mysticism and religion remained central. Religion is rooted in enduring humanistic principles, relevant across all eras.

Thus, in this transitional period, religion remains relevant because civilization has both technological and spiritual dimensions. Technological advancements alone aren't enough for humanity's next step, which also requires a transformation of consciousness while preserving ethics and values. The deaths caused by religious wars stemmed not from religion itself, but from people's failure to elevate their spirituality. We are referring not only to specific religions but to spirituality in general, which forms the foundation of religions. As Bruce Ellis Benson writes, "Perhaps we can awaken that sense of being a beginner all over again so that we may return to the phenomenon of spirituality afresh and describe primordial spirituality apart from the interpretive lens of "religion." (Benson, 2020:704). The best human values have historically been shaped by mystical thinking, beliefs, and religion. Alex Gillham suggests that experiencing God is profoundly important. "Perhaps experiencing God confers unique spiritual or moral benefits that change our lives significantly." (Gillham, 2020:302). For me, as a Christian citizen, the concept of transforming one's thinking is embodied in the symbolic act of St. Peter's repentance, which calls for thinking differently and transforming consciousness from that moment onward.

Results of Tbilisi State Conservatoire Musician Students' Views About Ethical Dilemmas on Transhumanistic Music

In this research, responses of participant were collected using a 5-point Likert-type (named after psychologist Rensis Likert) scale, where 1 represented "Strongly Disagree" and 5 represented "Strongly Agree." To interpret the mean scores, standard interval ranges were applied to classify the levels of agreement. Using the interval width calculation method proposed by Joshi et al. (2025), the total scale range (5 – 1 = 4) was divided by the number of response categories (5), yielding an interval width of 0.80. Based on this, the interpretation ranges were defined as follows: 1.00–1.79 = "Strongly Disagree," 1.80–2.59 = "Disagree," 2.60–3.39 = "Neutral," 3.40–4.19 = "Agree," and

4.20–5.00 = "Strongly Agree." These ranges are commonly used in educational and social science research to provide a standardized framework for analyzing Likert-scale data.

Interpretation of Participants' Views on Ethical Dilemmas

Table 3. Assessment of participants' attitudes toward ethical dilemmas concerning transhumanistic music (AI-generated music)

Ethical Dilemmas concerning transhumanistic music (AI-generated music)	$\bar{\bar{x}}$	X^2	p	Sig.	Int.	Meaning (patterns of agreement and disagreement)
ED1. Music created by a transhumanist entity can be regarded as human-produced	1.82	40.20	<.001	Sig.	D	Strong disagreement; Responses were predominantly clustered around "Disagree."
ED2. Competition between music produced by a transhumanist entity and that produced by a human is fair.	1.6	58.40	<.001	Sig.	SD	Strong rejection of fairness in this competition between transhumanist and human-produced music
ED3. Even when AI-generated music aims to mimic and refine human emotions, it remains open to evaluation as art.	2.12	30.40	<.001	Sig.	D	Divergence in views on the emotional authenticity of AI-generatedart
ED4. Music created via transhumanist processes remains the property of humans	3.10	12.40	.014	Sig.	N	Diverse but inconsistent views on ownership of AI-produced works
ED5. As music produced by transhumanist entities continues to evolve, music created through natural human talent may gradually lose its value.	2.54	14.00	.007	Sig.	D	A clear tendency to disagree with the idea that AI works surpasses humans
ED6. Using transhumanistic music to influence or manipulate people raises ethical concerns.	3.42	8.20	.084	Not Sig.	A	The significant differences observed; opinions are relatively evenly distributed
ED7. Musical performances incorporating transhumanist enhancements may still be considered authentic.	2.28	20.40	<.001	Sig.	D	Strong disagreement regarding the authenticity of the performance
ED8. As transhumanistic music becomes more prevalent, it could overshadow other forms and drive cultural homogenization.	3.32	9.80	.044	Sig.	N	Moderate concern regarding cultural homogenization
ED9. Transhumanistic music may diminish the musician's role in emotional communication	2.32	13.60	.009	Sig.	D	Notable disagreement with the idea of the musician's diminishing role
ED10. If transhumanistic music causes harm, the responsibility lies with the human users and developers, not with the AI.	4.08	41.00	<.001	Sig.	A	Strong consensus on human accountability for harm caused by AI

Sig: Significance **Int**: Interpretation **SD**: Strongly disagree **D**: Disagree **N**: Neutral **A**: Agree **SA**: Strongly Agree

The results indicate that students' responses to most ethical dilemmas were neither random nor evenly distributed. Rather, there were statistically significant trends toward agreement or disagreement, especially concerning artistic authenticity, human responsibility, and fairness in AI-musician interactions. The only exception was ED6, which showed no significant divergence, suggesting more varied or uncertain opinions regarding manipulation.

ED1. The human status of the musician and the creativity of the work

Mean: 1.82 → Disagree

Students disagreed with the statement, that music created by a transhumanist entity could be considered human-produced, reflecting a strong belief in the distinctiveness of human creativity in musical expression.

ED2. Fairness in the competition between natural musical talent and transhumanist musical talent

Mean: 1.60 → Strongly Disagree

Participants strongly disagreed with the notion that contest between transhumanist and human musicians could be fair, highlighting a perceived imbalance and a clear preference for human gift.

ED3. The meaning of artworks

Mean: 2.12 → Disagree

Students did not support the notion that AI-generated music, even when simulating human emotions, qualifies as art. Artistic value is still perceived as inherently tied to human experience.

ED4. Ownership of works in transhumanistic music

Mean: 3.10 → Neutral

Participants expressed uncertainty regarding music ownership in the context of transhumanistic production, reflecting the ethical and legal ambiguities regarding intellectual property in AI-generated music.

ED5. Continuous development in music composing

Mean: 2.54 → Disagree

Students disagreed with the notion that music continuously evolving through AI mechanisms could surpass the value of human-created (Without the intervention of any technology) music, indicating that traditional concepts of authorship and artistic intent remain significant.

ED6. Manipulation of people through transhumanistic music

Mean: 3.42 → Agree

Participants agreed that transhumanistic music holds the potential to manipulate audiences, raising ethical concerns about its influence and possible misuse.

ED7. Authenticity in music performance

Mean: 2.28 → Disagree

Students did not regard performances enhanced by transhumanist systems as authentic, reflecting the continued association of authenticity with human emotion and presence in musical performance

ED8. Cultural homogenization through algorithmic music

Mean: 3.32 → Neutral

Participants expressed neutral views on whether algorithmic music poses a threat to cultural diversity, indicating uncertainty about the long-term cultural implications of such technologies

ED9. Transhumanistic music and the musician's role

Mean: 2.32 → Disagree

Students disagreed with the notion that transhumanistic music would diminish the

role of musicians. Human involvement in music creation remains essential and irreplaceable

ED10. Responsibility for harmful outputs

Mean: 4.08 → Agree

Participants agreed that human developers should be held responsible if transhumanist systems produce harmful outcomes, reflecting a strong emphasis on ethical accountability.

A Gender-based Examination of Ethical Dilemmas in Transhumanistic Music

To investigate whether students' perceptions of ethical dilemmas in transhumanistic music differ by gender, a series of Mann–Whitney U tests were conducted for each item (ED1–ED10) of the scale. The analysis included responses from female and male students enrolled at the Tbilisi State Conservatoire in Georgia.

The results showed no statistically significant differences between male and female participants across any of the ten items ($p>0.05$ for all). This suggests a key insight: gender does not significantly influence students' perceptions of the ethical aspects of transhumanistic music performance, production, or responsibility.

This finding may reflect a shared educational and cultural context in which both female and male students engage with similar discourses on musical authenticity, intellectual ownership, and the influence of artificial intelligence on artistic identity

It also suggests a level of consensus in ethical reasoning, especially in contexts where traditional views of human-centered creativity are emphasized.

Given the balanced distribution of views across genders, future studies might explore other demographic or contextual factors (e.g., year of study, field of specialization) to identify more nuanced patterns in attitudes toward emerging technologies in music.

Conclusion

Concluding the findings, scientific advancements shape worldviews, the research found that civilization is an ongoing process of improvement, and human nature is revealed only in evolution. Music is a powerful tool and one of the main 'actors' in these processes. The findings indicate that contemporary music gave rise to new genres, innovative directions, novel compositional methods, algorithmic compositions, AI-generated music. All of these novelties relevant to the digital era contribute to the progress of humankind in its own way.

One of the key findings relates to the analysis of AI-generated music through the lens of Jean Baudrillard's theory of simulation, simulacra, and hyperreality.

It was concluded that the processes in contemporary art music led to the breaking of traditional compositional boundaries and the emergence of a completely different composing paradigm. This transformation aligns with the principles of transhumanism, posthumanism, and metahumanism, contributing to a shift in human consciousness. One final question that arises in the discussion of these issues is: What role does art—and art music in particular, the most abstract and mystical of all the arts—play in these transformative processes? It was determined that, as music directly impacts human emotions, it has always been primarily used for socio-political indoctrination during politically turbulent periods. However, the most important aspect is that music, unlike other art forms, has developed in close connection with spiritual traditions, through which spirituality has been most vividly revealed in music, from pagan rituals to church hymns. It was no coincidence that when Richard Wagner proposed the idea of reuniting the arts (*Gesamtkunstwerk*), he considered music to be the unifying factor of the arts, thereby equating the function of music with that of religion. In this way, he emphasized the significance of music. As is commonly known, the various branches of

art in the church did not serve each other individually, but all glorify the Lord together, with religion as their unifier. In this sense, Wagner elevated music to the function of religion.

It was determined that evolutionary processes in art music neither contradict religious beliefs nor technological advancements. After integrating technological advancements and AI in music composing, composers reimagined human potential.

Music, as it has always played a major role in transforming humanity into a better version of itself, in its way will continue to support the development of humankind. It will generate entirely new content, but since it has been rooted in spirituality since archaic times, it will not contradict the rapid evolution of creativity, nor will it hinder the emergence of renewed forms of artistic practice; Let's remember that for a long time, musical instruments were forbidden in Catholic churches, on the one hand as a relic of ancient culture, and on the other hand as a reference to man's ambition to be a demiurge who, like God, also creates musical instruments; According to Christian teaching, God gave us a kind of musical instrument in the form of a throat, which is assigned two functions: to praise the Lord with prayer and singing. Although, composers are interested in spiritual content within instrumental works in general. Let us recall Johann Sebastian Bach's, Richard Wagner's and Gustav Mahler's music, which used an unprecedentedly large orchestra for their era. Thus, art music neither contradicts religious beliefs nor technological advancements. After integrating technological advancements in art, composers will reimagine human potential. As music offers the clearest insight into the nature and destiny of humanity, it can contribute to the further enchantment of civilization because humankind stands on the values of morality, spirituality, and goodness, of which music has always been the clearest mirror.

The research concludes that the process toward the perfection of humankind is more important than the result: to be perfect. In other words, the value lies not in being perfect, but in moving ever closer to perfection. In light of the fact that the evolution of our civilization is both ongoing and irreversible, and that we humans live on a time-traveling planet—what Carl Sagan calls 'wanderers' in Pale Blue Dot: A Vision of the Human Future in Space (Sagan, 1994).

Nowadays, William Shakespeare's famous question—'To be or not to be?' (Hamlet, Act3, Scene1)—holds an entirely new meaning for me. Shakespeare recognized that our real world, as a kind of matrix or system, is flawed, and through Hamlet, he voiced the dilemma: Is death a better alternative to a life that defines human significance through constant suffering? And the answers can be found precisely in these trends and movements—transhumanism, posthumanism, metahumanism, and Euro-Transhumanism—discussed as the theoretical framework for artistic processes in this article, as they aim to address this dilemma by shielding humanity from suffering through biological and technological enhancement.

Thus, the evolutionary trajectory of humankind toward techno-human existence will not alter the fundamental purpose of art music, but it will transform the methods and forms of artistic expression through which the mission of art music is fulfilled. The perspective gained further support through the insights shared by Tbilisi State Conservatoire students on the future of music. The study revealed that music students at Tbilisi State Conservatoire hold clear and ethically grounded views on transhumanistic music, particularly valuing human creativity, authenticity, responsibility and regarding the integration of artificial intelligence. The findings reveal that student responses were neither arbitrary nor indifferent; rather, clear trends emerged that reflect strong ethical convictions about the role of human creativity, authenticity, and accountability

in music. Students generally rejected the notion that AI-generated music could possess the same artistic value or human essence as traditionally composed music. They also expressed a firm belief in the uniqueness of human talent and voiced concern over issues of fairness in AI–human competition. Notably, students strongly supported the idea that human developers must bear responsibility for any harmful outputs from transhumanist systems, underlining the importance of ethical accountability in technological innovation. While responses regarding ownership rights and cultural homogenization were more neutral, these areas suggest unresolved questions requiring further exploration in the music ethics discourse. Interestingly, the gender-based analysis demonstrated no significant differences in ethical perceptions between male and female students, indicating a shared cultural and educational perspective rooted in traditional human-centered musical values. This uniformity may reflect common curricular exposure or prevailing societal beliefs about the sanctity of human artistry in music. Overall, the study suggests that while music students are aware of and open to technological advances in music, they maintain a cautious and ethically grounded stance toward transhumanist innovation. These findings highlight the need to further integrate ethical training into music education and suggest that future studies should investigate other influencing variables, such as academic year or area of specialization, to uncover deeper nuances in students' views on AI-driven creativity and responsibility in the arts.

Recommendations

Recommendations for Future Scientific Research

Given the interdisciplinary nature of the relationship between contemporary music and human evolution in the age of scientific-technological progress, the following recommendations are offered for scholars and researchers exploring similar topics. These recommendations given by the author in several directions are as follows:

Regarding the expansion of the research area

Future research should include examples from other artistic disciplines, such as literature, theatre, painting and sculpture, as similar transformative processes are occurring across all fields of art, collectively shaping the foundations of future artistic expression. By addressing these additional areas, future research can contribute meaningfully to the discourse surrounding art, technology, and human development, offering critical insights into how artistic creation participates in broader civilizational shifts.

Regarding the expansion of survey participants

To ensure a more comprehensive perspective, future research should involve not only music students but also students from a broad range of artistic disciplines.

Recommendations for Music Teachers

Music teachers should integrate digital and AI tools into history and theory classes, encouraging student experimentation and ethical reflection. Including discussions on transhumanism deepens understanding, while emphasizing human creativity and ethics remains essential. Collaboration with other departments broadens students' perspectives on music's future.

Recommendations for Composers

Composers should blend new genres like AI and generative music with traditional aesthetic principles. They need to address ethical themes such as authorship and the role of AI in their works, thoughtfully exploring transhumanist concepts. Additionally, sharing new methods for responsible digital composition helps promote ethical innovation.

Recommendations for Music Technology develope

Music technology developers should design tools that support human creativity and promote ethical use. They are encouraged to develop clear guidelines regarding ownership and responsibility in AI-generated music. Collaborating with musicians and educators ensures that these tools align with real artistic needs, while offering training on both technical and ethical aspects enhances responsible and informed usage.

Limitations of Study

To demonstrate academic significance, contextualize the findings, and suggest directions for future research, this study was focused on selected examples of contemporary music—namely digital music, multimedia music, ecomusic, and AI music. The limitations refer to methodological and demographic constraints, as the study employed only quantitative, qualitative and interpretive methods and included only musician students from Tbilisi State Conservatoire (Georgia).

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Appendix 1. Opinions on Ethical Dilemmas in Transhumanistic Music (OEDTM)[7]

Opinions on Ethical Dilemmas in Transhumanistic Music (OEDTM)

Explanation: Dear student, this form has been prepared to understand your opinions on the ethical dilemmas that have emerged with the rise of transhumanistis music, that is, music produced with AI support. Please indicate your level of agreement with the statements provided. Note: Transhumanist music entity: supported by software such as AI. Please mark with an **X** in the appropriate box.
I voluntarily agree to participate in this research.
Yes ☐ **No** ☐

Dr. Gvantsa Ghvinjilia

Gender:
☐ Male ☐ Female
Degree Level:
☐ Bachelor 1st Year ☐ Bachelor 2nd Year ☐ Bachelor 3rd Year ☐ Bachelor 4th Year
Branch:
☐ Composition ☐ Musicology ☐ Performing Arts

1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree

Ethical Dilemmas	Propositions	1	2	3	4	5
Ethical Dilemma 1. The Human Status of the Musician and the Creativity of the Work Is the musician a human or not? Is music human creativity? If a transhumanist entity (e.g., one with an implant or supported by AI) creates a piece of music, should we consider this a human work? Should we accept it as an expression of human creativity?	1. Music produced by a transhumanist entity can be considered human-produced.					
Ethical Dilemma 2. Fairness in the Competition Between Natural Musical Talent and Transhumanist Musical Talent If a naturally talented human cannot afford expensive new technologies, an unfair competition with Transhumanist Musical Talent arises. Which should be considered more valuable?	2. Competition between music produced by a transhumanist entity and music produced by a human is fair					
Ethical Dilemma 3. The Meaning of Art music Music has emerged from human emotions. Now that it is being imitated by transhumanist entities, should we redefine the concept of art? Is what is produced still art in its essence?	3. Even if AI-generated music is designed to optimize and imitate human emotions, it can still be evaluated as art					
Ethical Dilemma 4. Ownership of Works in Transhumanist Music Who owns the rights to newly produced music? The human, or the software system that enabled it?	4.The ownership of music produced in a transhumanist way still belongs to the human.					
Ethical Dilemma 5. Continuous Development in the Work If a transhumanist music work is created with infinite development and skills, won't natural human talent lose its value over time?	5. As music produced by a transhumanist entity continuously develops, music created through natural human talent may lose its value over time					
Ethical Dilemma 6. Manipulation of People Through Transhumanist Music With its advanced ability to manipulate human emotions, can transhumanist music be used unethically?	6.Using transhumanist music to manipulate people constitutes an ethical problem.					
Ethical Dilemma 7. Authenticity in music Performance If a transhumanist musician uses AI to perfect live performances (e.g. brain neural interfaces), is the performance still authentic?	7.A music performance enhanced by transhumanist music can still be considered authentic					
Ethical Dilemma 8. Cultural Homogenization Through Algorithmic Music Composition Will AI-generated music lead to the erosion of cultural diversity by favoring globally marketable sounds?	8.Transhumanist music will dominate music data and lead to cultural homogenization					
Ethical Dilemma 9: Emotional Labor and Empathy Fatigue If AI-generated music is increasingly used to soothe, stimulate, or heal human emotions, what happens to the role of human musicians as emotional communicators?	9. Transhumanist music will decrease the musician's role as an emotional communication, as they Transhumanists will be more able to influence human emotions					
Ethical Dilemma 10. The Responsibility for Harmful Outputs If music generated by AI (under transhumanist guidance) contains harmful content—such as reinforcing stereotypes, triggering trauma, or encouraging unethical behavior—who is responsible?	10.If transhumanist music causes harm, the human users and developers are responsible (not AI)					

[7] Verified by Tbilisi State Conservatoire's administration (Document No. 02/410)

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Gvantsa Ghvinjilia is a musicologist, Ph.D., Doctor of Art Studies, and Associate Professor in the Department of Music History at the Tbilisi State Conservatoire, where she also serves as Head of the Dissertation Board. She is Editor-in-Chief of the *Journal of Music Theory and Transcultural Music Studies* (JMTTMS) and a member of the Georgian Composer's Union. In addition, she holds a guest senior lecturer position at Shota Rustaveli Theatre and Cinema Tbilisi State University. Dr. Ghvinjilia was a jury member for the prestigious Tsinandali Awards in 2022 and has been awarded scholarships from both the President of Georgia and the Zakaria Paliashvili Fund. From 2006 to 2013, she held the roles of PR Manager and Head of the Literary Department at the Tbilisi Zakaria Paliashvili Opera and Ballet State Theatre. Between 2021 and 2023, she participated in the Erasmus+ Mobility Exchange Program in Belgium, France, and Poland. She has delivered public lectures in Georgia, Belgium, Poland, and Ukraine and is a frequent contributor to Georgian television and radio as a speaker and commentator. As a music critic, she regularly writes for leading Georgian periodicals and actively participates in national and international academic conferences. Her research interests encompass the religion and music, transcultural studies, multimedia and eco music, musical culture and transhumanism.

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