

A new turn in music mapping and a rethinking of musical space through AI in a posthuman perspective

Chuyue Shi

East China Normal University, Shanghai, China

ecnuscy@163.com

Abstract. This paper examines how generative artificial intelligence transforms music creation, music mapping, and conceptions of musical space within a posthuman paradigm. As systems such as Suno dissolve the boundary between human and machine creativity, the traditional human-centered model of musical authorship becomes destabilized. Generative AI not only lowers the technical threshold for musical production but also introduces a probabilistic, non-linear mode of generation in which symbolic notation, performer mediation, and stable structural anchoring are no longer required. This shift produces a new form of subjectivity—distributed across humans, algorithms, and data—and redefines the pathways through which musical meaning is constructed. The paper further argues that AI-based music mapping constitutes a new epistemic turn. Human perceptual complexity is reduced into textual prompts, forming anchor points that the algorithm expands, reorganizes, or collapses through stochastic processes. Drawing on quantum concepts such as superposition and collapse, the study conceptualizes AI-generated musical space as a dynamic, multi-dimensional system moving through pre-generation, input, and generative phases. Each phase reflects shifting states of possibility and constraint, resulting in musical outcomes that are both unique and situated within a broader field of latent potential. This framework reveals how generative AI reshapes not only musical space but also the cognitive and phenomenological foundations of music creation.

Keywords: generative music AI, posthuman subjectivity, music mapping, musical space

1. Introduction

With the advancement of AI technology and the evolution of post-human perspectives, the field of music has undergone transformative changes. At the core of these changes lies a redefinition of the subjectivity of music creation and the methods of generation, leading to an expansion of the traditional boundaries of the music ecosystem. The boundaries between humans and technology is increasingly dissolving. Generative music AIs, such as Suno, which leverage deep learning and algorithmic modeling, can not only produce highly complex musical compositions but also learn styles, structures, and modes of expression from vast datasets. This enables the creation of music that transcends the experiential domain of human creators. Such capabilities challenge the traditional notion of human-exclusive subjectivity in music creation. Generative music AI is no longer merely a tool; it emerges as a collaborator or even an independent creator. Consequently, the subjectivity of music creation shifts from a human-centric paradigm to a post-human perspective, emphasizing collaboration between humans and technology and even recognizing the subjectivity of technology itself.

Thus, understanding the transformation of subjectivity brought about by generative AI in music creation, the anchoring pathways and dynamic outcomes of music mapping by such AI, becomes an urgent question to address. Furthermore, the nonlinear nature of information transmission inherent to music hints at another intriguing possibility: the presence of micro-level dimensional ascent or descent during the generative process. This phenomenon has been particularly evident in the evolution of music since the 20th century, manifesting as a divergence between auditory perception and cognitive interpretation—where humans fail to extract sufficient narrative information from the corresponding waves (i.e., music).

From a phenomenological perspective, this suggests that music, from the moment it is perceived, undergoes continuous temporal and spatial expansion and contraction. Humans unconsciously impose certain constraints on music, attempting to project it as a fixed cognitive map within the mind. This process of music mapping carries both distinct advantages and drawbacks, with implications for power and knowledge structures that often far exceed the essence of music itself. With the rise of generative AI, this auditory and cognitive rupture is further amplified—now in ways that are increasingly imperceptible to human discernment.

2. The transformation of subjectivity in music creation brought by generative AI

The transformation of subjectivity in music creation brought about by generative AI can be analyzed from both macro and micro perspectives.

From a macro perspective, whether it is technology or people who create music, it can be seen as a productive tool. The overall purpose and function of music creation within human society have not fundamentally changed. Music continues to serve as a vital medium for cultural transmission, emotional expression, and entertainment consumption. Its target audience and market demands remain largely the same. However, for individuals and groups whose livelihoods depend on producing music and its related products, the impact has been profound.

Generative AI has significantly lowered the technical barriers to entry in music creation, enabling more individuals, including those with creative potential but lacking professional skills, to participate in the field. This has led to a more diverse and dynamic music creation landscape, attracting new talent to the industry. At the same time, this influx of creators has strained the availability of resources within the industry, inevitably intensifying market competition. Professionals who previously relied on specialized skills may face challenges in adapting, while newcomers must innovate continuously to stand out in an increasingly crowded space.

Despite these considerable disruptions within the music creation industry, the changes introduced by generative AI are relatively minor within the broader context of human societal development. Similar shifts have occurred during previous technological revolutions, such as the industrial revolution and the information age, where occupational structures and resource allocations were significantly reshaped. As such, the impact of generative AI on the music industry is but a small adjustment within the grand arc of history. Furthermore, its influence on systems beyond human society, such as ecological or non-human domains, is extremely limited.

In conclusion, from a macro perspective, the subjectivity of music creation remains rooted in human society. The involvement of generative AI has not fundamentally altered this human-centric structure of subjectivity.

From a micro perspective, the impact of generative AI on individual music creators is profoundly significant. In this human-machine collaborative process, the traditional model of music creation—where composers use spatial coordinates (musical scores) to convey narrative paths and intricate details to listeners through performers—has been fundamentally disrupted. For a long time, composers, performers, and listeners were considered the core elements of music creation. Composers relied on musical scores to meticulously plan the developmental trajectory of a piece and provide performers with clear auditory anchors. This facilitated the formation of structural cues and auditory focal points in the real world, allowing listeners to interpret a "musical space."

In this traditional model, the composer was often regarded as the sole creative authority, with their subjectivity manifested through symbolic (scores) and acoustic (sound) forms. For an extended period, symbolic media, primarily in the form of scores, held a central place in the transmission of musical information and dominated music theory research.

However, generative AI, with its reliance on probabilistic algorithms and neural networks, has deconstructed the traditional notion of the creative subject. In this new paradigm, symbols are no longer necessary as carriers of information, nor is the performer required as an intermediary for rendering sound. Listeners can now customize their auditory experiences based on personal preferences. This mode of creation further emphasizes the information-transmitting nature of music as an auditory art form.

Within this framework, the music creation process no longer depends solely on human direction. Instead, it shifts toward human-machine collaboration or even autonomous generation by AI. This shift expands the concept of the "creative subject," removing it from the exclusive domain of human privilege. In a sense, humans are becoming subordinate to technology in this process.

At the same time, AI music generation based on deep learning neural networks no longer relies on symbols as the medium between the creator and the music. Its generation process is gradually evolving into a complex network of human-machine interaction. This continuously intertwined dynamic system gives music mapping an inherent randomness that differs from traditional music creation.

3. The new turn in music mapping

Current music-generating AI can generally be divided into two types: one is symbolic music generation [1], and the other is audio music generation [2]. The former processes musical events according to time sequences and offers a stronger understanding of and editability for musical structures, while the latter relies on deep learning neural networks, employing extensive probabilistic calculations and inherent randomness to create diverse musical content, thereby leading to a new shift in music mapping.

Taking Suno music as an example, we observe that this type of AI music generation based on deep learning typically follows these creative steps: the creator (human) writes corresponding textual descriptions and style options for the AI in a dialog box,

and the AI then generates music and lyrics based on the textual input. People do not need to understand every music style to create music, and they do not even have to fully comprehend what they are saying. For instance, many creators attempt to express themselves using emoticons or emojis, and Suno is capable of generating impressive works based on these inputs (see Figure 1 and Figure 2).

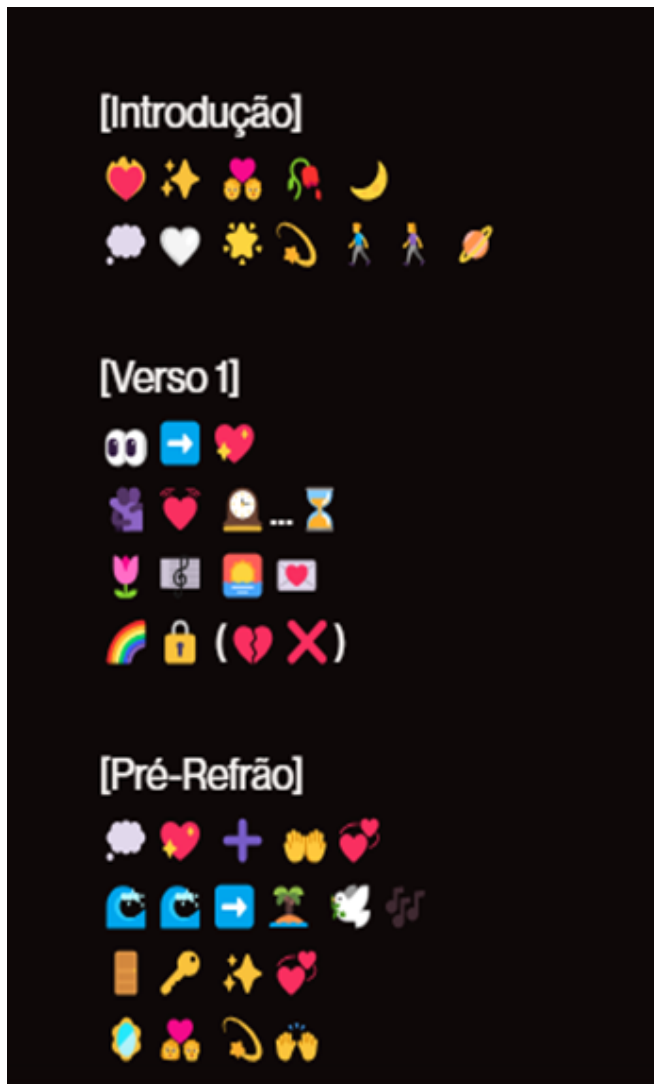


Figure 1. Suno AI music generation interface with emoji input



Figure 2. A music segment generated by Suno AI based on emoji prompts

This process reminds me of a certain description once applied to Schubert [3]. People once viewed him as a vessel for inspiration rather than the source of inspiration itself. In the AI generation process, the role of "inspiration itself" is played by humans, while the AI serves as the "vessel of inspiration." Of course, unlike the traditional model, this generation is no longer a one-dimensional "representation"; it evolves into a "polymorphic" process. This means that the roles of "inspiration" and "vessel" continuously shift back and forth between humans and technology. A piece of music, even under the same generation conditions, can present different forms, much like how a quantum system exists in a superposition state before being observed.

The process of AI-generated music can be seen as a "multiverse" derivation under a quantum thinking framework, where each generated music piece materializes through multiple potential paths. This dynamic generation model transforms the music space from a traditional linear or structured narrative space into a deterritorialized or "rhizomatic" network form [4]. Therefore, these seemingly parallel experimental results actually have deeper, more intimate connections, a connection that can be inspired by the above example of Schubert, in which a dimensional shift occurs between the generating subject and the generated result.

When humans use Suno or similar AI technologies for music creation, there is essentially a process of reducing high-dimensional complex individual perceptions (such as emotions, cultural background, artistic inspiration) into quantifiable descriptions (such as rhythm, tempo, timbre, or style) through algorithms. In this process, the foundational anchor points for AI

creation are determined, and these anchor points are observable. Then, based on the text input, the AI customizes and adds some anchor points that the creator did not describe, and this part is difficult to observe and control. Generally, the order of the text does not have a significant impact on the result, provided that Suno has been trained on the corresponding data and understands and stores the relevant timbre library; otherwise, even if a description is provided, sound cannot be produced. While this transformation makes complex music creation more computational and standardized, it also brings issues of information loss and reorganization.

It is clear that humans find it difficult to describe individual perceptions through written symbols alone. Even with the same emotions and cultural backgrounds, individual differences are vast. Therefore, people are forced to discipline their own perceptions, unconsciously erasing their differences, in order to allow the machine to function and deliberately fitting into a mold of uniformity, creating a behavior pattern that runs counter to the original intent. Whenever people fail to achieve the desired result, they instinctively attempt to modify their own descriptions rather than questioning the AI. Especially when post-human perspectives consider AI technology to also possess subjectivity, such a phenomenon can be dangerous [5]. It seems to establish an authority within human knowledge systems, controlling people's cognition, and people often have difficulty distinguishing this—especially those who lack relevant musical knowledge. Even after obtaining the generated result, people may forcefully elevate the description in order to contrast it with the pre-generation input. This shifts the way music mapping is done. What people are creating is a map based on the dimensionality-reduced anchor points, and each generation brings forth a new map. They do not unfold linearly based on causal relationships in the same time-space, but instead form a constantly folding [6], crumpled maze.

4. Reconfiguration of musical space and the inspiration of quantum perspective

With the new paradigm shift in music mapping, the definition and boundaries of musical space have undergone significant changes, revealing an unprecedented complexity and fluidity. The metaphor of quantum superposition in physics provides valuable insights into understanding the unique spatial properties of AI-generated music.

As a time and space art form, the expressive power of music always revolves around the construction and reorganisation of space-time. Driven by AI generation technology, the space-time of music is no longer just a fixed sequence of notes or a propagation path of physical vibrations, but a multi-dimensional dynamic narrative.

Combined with superposition and collapse in quantum thinking, we can explore the generative logic of musical space-time and its philosophical significance in greater depth.

In traditional music composition, space and time are often presented in a linear form: time is advanced in beats, and space is expressed through the distribution of instruments or the stereo sound field of a recording. However, in the context of AI-generated music, musical space-time becomes more complex and open.

AI-generated music extends beyond the physical limitations of instruments, notes, and timelines arranged in conventional spaces. Instead, it leverages computational and algorithmic means to construct a multidimensional musical realm. In this space, elements such as timbre, rhythm, emotion, and cultural symbols are decomposed into fundamental components and mapped onto high-dimensional algorithmic representations.

Based on the previous discussion of music mapping, we can roughly categorize the music space into different states depending on the various stages of music generation. One of these states occurs before the music is generated, similar to a vertical overview of entering a maze. This state represents the superposition of potential possibilities before the generation begins; we cannot determine how many layers exist or what the exact path is, as it is a state where all musical spaces collapse into a single point. Then, as textual descriptions are input, it is akin to beginning to set a destination for exploring the maze. At this point, the music space starts to both unfold and collapse simultaneously. On one hand, the information provided by the input gradually expands, while the unprovided information begins to collapse. During the generative AI process, both unfolding and collapsing undergo some random variation, like being randomly teleported to different places while exploring the maze, thus leading to different plot developments. Finally, the generated result marks the collapse of the music space into a specific sound, akin to obtaining a tangible item from a maze's treasure chest. This is a completely new interpretation and understanding of music space. Unlike previous models that only focused on specific elements like pitch and melody, this understanding stems from the fact that after generative AI produces the specific sound, the generation process has not yet concluded but returns to the initial superposition state. Therefore, the entire dynamic generative network must be regarded as a whole to fully understand generative AI's role in music creation. Therefore, we can divide the musical space into the following more specific parts.

4.1. Pre-generation: superposition of potential states

This phase represents the superposition of all possible paths that music could take, a state in which no definitive outcome exists. Just as in quantum mechanics, where particles exist in a superposition of states until observed, the musical potential remains undefined and infinite.

In this state, there are no specific melodies, harmonies, or rhythms—only possibilities. The music exists as an array of latent potentialities in a multi-dimensional space. The input to the system does not yet exist, and the possible combinations and outcomes are only theoretical. At this stage, the AI is not yet engaged in the process of generation. It is akin to viewing a complex system from a bird's-eye view, where the path is unknown and the labyrinth of musical possibilities is both endless and unresolved.

This stage is marked by complete indeterminacy. We cannot discern which specific musical qualities will emerge, how they will manifest, or even the direction in which the generation will unfold. The “maze” of possibilities is still collapsed into a singular, undefined state. This state of superposition is key to the generative process of AI music, as it allows for the fluid exploration of multiple potential outcomes before narrowing down to one.

4.2. Input stage: setting the path—unfolding and collapsing

As we proceed to input the textual description that guides the AI, we move from the superposition of possibilities into the exploration of a more defined set of paths. The text input begins to provide the AI with parameters—such as mood, tempo, and musical style—that give shape to the musical exploration, simultaneously enabling the expansion of some dimensions of the music space and the collapse of others.

During this phase, the music space expands in certain areas based on the descriptive input. For instance, if the input specifies a melancholy tone, the algorithm begins to expand the possible pathways that lead to that emotional quality, perhaps creating harmonies and rhythms that fit this mood. On the other hand, other possible musical dimensions—those not specified by the input—start collapsing, as the AI narrows down the range of possibilities to match the input constraints.

This duality of unfolding and collapsing creates an intricate dynamic process. While the music space is being explored, certain elements are amplified, and others recede. The AI is not simply processing a linear string of commands but instead interacting with a multi-dimensional space in a non-linear, probabilistic manner. In essence, the AI is navigating a maze that has no fixed walls but is instead a constantly shifting environment. The elements that emerge are based on both the instructions given by the user and the probabilistic nature of the generative algorithm, adding a layer of randomness and unpredictability.

4.3. Generation: random variability in the exploration process

As the generative AI continues its process, both the unfolding and collapsing stages are subject to random changes. The initial set of inputs (descriptions) serves as the starting point, but the path taken within the maze may vary each time, resulting in unique musical outcomes.

This stage highlights the stochastic nature of AI-generated music. Even if the same text description is input into the AI, the music generated will not be exactly the same each time. There will always be a certain level of variation—whether it's the timing, the arrangement of sounds, or the subtle emotional shift in the music. Each generative cycle produces a unique outcome, adding complexity to the process.

In this stage, the AI “wanders” through the maze of musical possibilities, creating novel connections between musical elements, blending familiar ideas with unexpected variations. The result is a piece of music that feels both familiar and new, a unique instance that only emerged because of the random permutations and generative decisions made during the process.

4.4. The collapse: generating a specific sound

After the music has been generated, the final result can be seen as a collapse of the music space into a singular, concrete sound. This is similar to obtaining a treasure from the maze—something tangible and specific that is the result of all previous choices and paths taken.

At this point, the music has transitioned from a cloud of possibilities into a concrete, fixed form. The sound that emerges is the result of a collapsed state, where all the potential elements that were explored during the generative process have coalesced into a specific auditory output. The generated sound becomes the “end product,” the concrete treasure that the AI has created.

However, this “collapse” is not the end of the process. Even after the music is created, it often returns to the initial state of superposition. The music may be edited, remixed, or further explored, creating new possibilities for further collapse and expansion. This constant return to the initial potential state—where everything is still possible—is what makes generative AI music unique and dynamic.

This entire process—from superposition to collapse and back again—illustrates the dynamic and cyclical nature of AI music creation. It is no longer a one-time linear process of input and output, but an ongoing interaction between human creativity and technological possibility. The generative process is fluid and constantly in motion, creating a new music space with each iteration.

By understanding this dynamic, we can see generative AI as a powerful tool for exploring the vast potential of music creation, where the boundaries of musical structure are constantly shifting. Each new generation brings with it a new map, a new maze to explore, where unexpected paths and treasures emerge. It is a process that continually evolves, offering infinite possibilities for musical innovation.

5. Techno-human co-creation of future music ecology

From a post-human perspective, the subjectivity deconstruction brought by generative AI and the dynamic generative networks present new opportunities for contemporary music creation, while also raising many ethical and aesthetic discussions. With the widespread application of AI technology in music creation, the issues of copyright, ownership, and responsibility for generated music have become pressing topics that need to be addressed. In traditional music creation, copyright ownership is usually clear, with the creator holding the rights to the work. However, in AI-generated music, the ownership of copyright is not so clear. When AI generates music based on human input, who should bear the responsibility for the copyright? In fact, platforms like Suno have faced significant resistance from many artists regarding infringement, but if AI-generated music is to be further developed, vast amounts of data need to be used for learning and iteration. Establishing and improving corresponding legal frameworks and ethical standards is an essential prerequisite for the widespread use of generative AI.

In addition to the ethical issues of copyright and responsibility, the emergence of AI-generated music has also brought about changes at the aesthetic level. Traditional music creation focuses on the artist's individual expression and emotional transmission, while AI-generated music tends to be more technical and procedural. AI-generated music often presents structures and styles that differ from traditional music, which leads to changes in the listener's aesthetic experience.

As AI technology develops, listeners' aesthetic paradigms are gradually shifting toward a technology-driven aesthetic. In the past, the aesthetic standards of music were shaped by history, culture, and personal emotional experiences. Today, AI-generated music offers listeners a completely new auditory experience. This music often exhibits more experimentation, complexity, and unpredictability, challenging traditional musical aesthetic concepts.

For listeners, AI-generated music is no longer just an art form but also a result of technological creation. This shift encourages people to pay more attention to the technical aspects of music creation, such as algorithm choices, data training, and the generation process. This technology-driven aesthetic broadens listeners' aesthetic perspectives and gradually integrates the aesthetic value of music into the context of technological innovation.

Once ethical and aesthetic issues have been discussed to some extent, the future music ecosystem can be further explored. This involves more complex issues related to technology, markets, and society, which ties back to the initial discussion about macro-subjects in the paper.

6. Conclusion

Although music-generating AI is still in its early stages and many aspects exhibit clear limitations, it holds immense potential and future value. Its ability to further dissolve human subjectivity will enable future music creation to be more diverse, offering listeners a more fascinating auditory experience. The dynamic generation network increases the randomness of music mapping, granting more possibilities for the phase changes of music space metaphors.

Overall, the application of generative AI in music creation is reshaping the music creation ecosystem. The development of generative AI technology has propelled music creation into a more open, dynamic, and multidimensional space, breaking the traditional boundaries of time, space, and emotion in music composition. In the future, as technology continues to advance, AI will play an increasingly important role in music creation, appreciation, and distribution. However, to realize this transformation, in-depth exploration and regulation are required in legal, ethical, and aesthetic aspects, ensuring that AI technology can contribute to music creation and the diversity of human culture within a reasonable and fair framework.

The future music ecosystem will be a deep fusion of technology and culture, where music created collaboratively by AI and humans will become the new norm. In this new ecosystem, technological innovation not only drives breakthroughs in music creation but also brings new possibilities for music's distribution, appreciation, and evaluation. As these transformations unfold, music creation will become more diverse, open, and inclusive, ushering in a richer and more colorful future.

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