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THE ETHICO-CULTURAL IMPLICATIONS OF ARTIFICIAL INTELLIGENCE AND ALGORITHM-GENERATED MUSIC IN NIGERIA

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***Abstract*:** AI technologies are increasingly shaping creative processes in the music industry, raising critical ethical and cultural questions about ownership, originality and the value of human artistry. In Nigeria, the rise of AI-driven music presents challenges in preserving cultural authenticity and protecting intellectual property rights amid rapid technological advancements. This study critically examines the ethical and cultural implications of AI-generated music within the context of Nigerian music production. Using descriptive and evaluative methods—including literature reviews, interviews, case studies and content analysis—it explores industry perspectives, concerns and the practical impact of these technologies. Findings reveal that AI blurs the lines between human and machine creativity, contributes to cultural homogenization and threatens job security for musicians and producers. Additional ethical concerns include potential loss of intellectual property and copyright protections.

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1. Introduction

The rise of artificial intelligence (AI) and machine learning (ML) has transformed music composition and production, extending beyond data processing to creative applications. AI-driven software is now integral to sound design, beat creation, and composition, while also playing a role in marketing, promotion, and data analysis. However, these innovations raise ethical and cultural concerns regarding artistic authenticity and the dominance of industry-driven economic interests. Mainstream music producers often adopt AI without considering its ethical implications, primarily motivated by financial gain (Lanyard 2). In Nigeria, where the music industry is rapidly expanding, it is crucial to assess AI's local impact.

AI's application in music dates back to the 1950s (Miranda 7), though significant breakthroughs in composition and improvisation emerged in the 1990s. The advent of personal computers and the internet further democratized AI-driven music tools, allowing researchers, artists, educators, and hobbyists to experiment with AI in recording and production. Early AI music systems established connections between symbolic computing, performance, and musical inputs (Folorunso et al. 629). This led to the proliferation of AI tools tailored for diverse compositional needs.

AI-driven instruments now integrate advanced data structures, enhancing music generation. Creative System Development (CSD), for instance, composes in rock, jazz, and avant-garde styles by combining natural computing and AI techniques (Herremans, Chuan, and Chew 7). It employs mimetic models simulating animal behavior, offering composers new insights into combinatorial creativity (Martins de Sousa, Torres Pereira, and Veloso 111). Such systems replicate human composer ecosystems, advancing AI's role in music.

Breakthroughs in digital signal processing, proprietary and open-source music software, and generalized composition tools have solidified AI as a crucial component in professional music production (Zhang 1381). Modern AI models, trained on extensive datasets, generate melodies and rhythms by mimicking specific musical styles or composers. Within natural language processing (NLP), these systems analyze musical rules statistically, enabling them to compose and perform sequences, manage latent phase representations and establish mappings between high-dimensional inputs and genre-dependent variables (Balaban 43).

2. AI-Generated Music Tools

AI-generated music entails the input of extensive data into algorithms that analyse chords and recordings to build musical patterns **(**Faster Capital 1). Artists are progressively adopting this technology, resulting in a growing need for artificial intelligence music generators. Notable AI-generated music tools include the following:

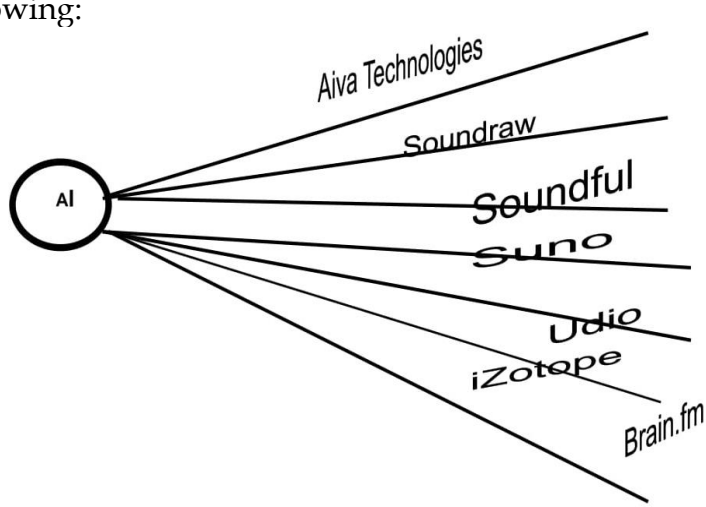

Fig. 1: Divergent AI-music generating tools

Aiva Technologies: This engine enables composers and artists to create unique works or submit existing works for new versions **(**Schroer 2)**.** The platform provides complete user rights, removes

any licensing issues, and intends to improve cooperation between robotic and organic forms of music creation.

Soundraw: It is an AI-driven music platform that enables producers to generate customized songs that synchronize with video sequences, thereby circumventing copyright complications and enhancing the efficiency of music dissemination.

Soundful: This is capable of producing background music for a variety of platforms, such as social networking, video games and digital advertisements **(**Schroer 3). A wide variety of themes and moods are available for users to choose from, while bigger organizations have the option of selecting Soundful's business strategy for licensing and monetization purposes.

Suno: It is an AI tool with the ability to generate music from a single text input. With this tool, users can produce songs related to specific subjects and genres by experimenting with various prompts. This endeavour is supported by tools that combine artists and AI specialists from firms such as Meta and TikTok.

Udio: Google Deepmind developed Udio to assist users in creating their own original music through prompts and tags. Users can adjust certain characteristics, such as genre and emotional tone, by adding tags. Udio not only produces two copies of each submission, but it also includes a persistent prompt box that allows for ongoing adjustments and enhancements.

iZotope: This tool has been at the forefront of AI-assisted music creation. Using a track's sound palette, this tool produces effects that are unique to the tune. Currently, iZotope provides a set of assistants for mastering, recording voice mixes and applying reverb.

Brain.FM: This AI-powered music application developed by engineers, business professionals, artists and scientists, structures songs and incorporates acoustic elements to help users achieve various mental states. A pilot study found that Brain.FM improved sustained attention and productivity by reducing mind-wandering and increasing concentration (Schroer 5; Faster Capital 1).

3. Algorithm-Generated Music

Algorithm-generated music merges creativity and technology, using mathematical formulae and AI to compose beyond human limits (Deruty et al. 37). It enhances efficiency in generating soundtracks for digital media and identifies patterns to reflect specific styles. AI-driven composition explores new structures while streamlining soundtrack creation through extensive databases (Pace 3; Zhang 1380). Several methodologies drive algorithmic music composition, including rule-based algorithms, Markov chains, machine learning, evolutionary algorithms, and procedural music. Rule-based systems establish predefined constraints such as scales, rhythmic structures and instrumentation, guiding compositions within specific frameworks (Zhang 1379). Markov chains enhance coherence by determining the probability of transitioning between musical elements based on prior occurrences, creating fluid compositions without rigid adherence to rules (Zhang 1380; Briot et al. 29). Deep learning (DL) and machine learning (ML) have become dominant approaches in algorithmic composition. These methods train computers on extensive music datasets, allowing them to recognize patterns, styles and genres. Through neural networks, computers generate new music that mimics established structures. A key deep learning model, Generative Adversarial Networks (GANs), employs two neural networks—the generator and discriminator—to refine compositions iteratively (Briot et al. 20).

Evolutionary algorithms, as we know, expand algorithmic composition by mimicking biological evolution. These systems introduce random mutations, evaluate generated music and select the most suitable pieces for refinement, enabling the creation of increasingly complex compositions (Bahuleyan 1804). From AI-driven media compositions to experimental pieces pushing creative limits, algorithmic music is set to redefine artistic expression and innovation (Engel et al. 11). The algorithms may produce compositions with varying statistical characteristics, emulating musical transformations. The Music Processing Suite is

a sophisticated piece of software that uses evolutionary algorithms to generate musical compositions based on statistical parameters, as illustrated below.

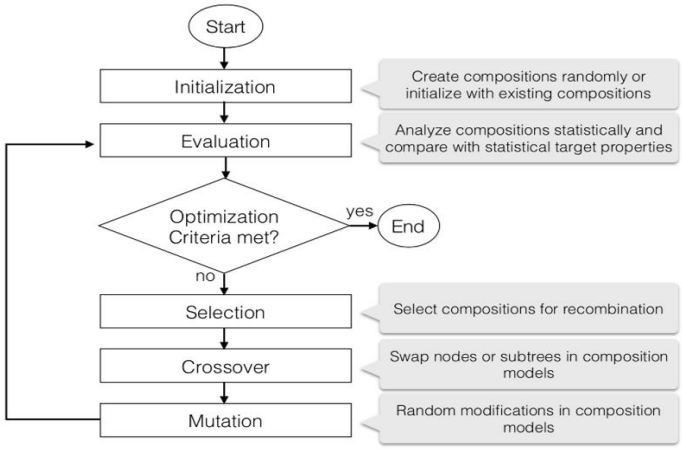

Fig. 2: Process of algorithms-generated music
Source: Pace (2). Music Production Suite

Machines need harmonic notation, evident in structured compositions with vocal elements, as illustrated below

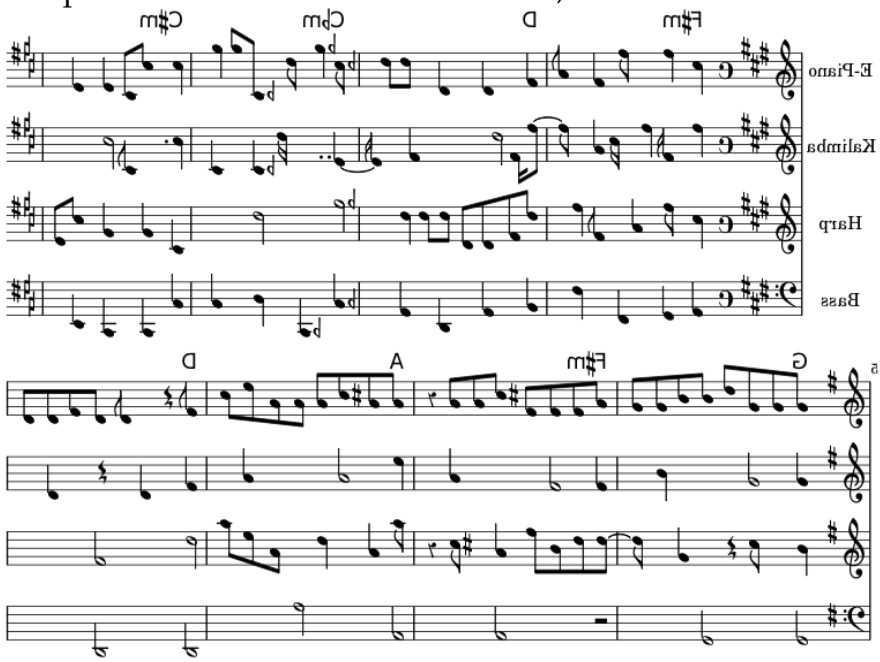

Fig. 3: Algorithm-generated song
Source: Pace, David (2). Music Production Suite

4. Case Studies Involving AI-Generated Music in Nigeria

Nigeria's music industry, known for Afrobeats, Juju, and Highlife, has become a hub for AI-driven innovation. In 2023, singer Tobi A released an album featuring AI-generated rhythms, blending technology with cultural authenticity. Similarly, in 2022, software engineer Emeka O developed an AI project to create Juju-inspired compositions, sparking debates about AI's ability to capture the deep emotions of spiritual and cultural music. AI is also reshaping Nollywood's film soundtrack production. In 2024, Nigerian composer Funmi A used AI tools like Google's Magenta to create symphonic soundtracks for a historical film, reducing production time while enhancing emotional depth (Marvin Kpoko, oral interview, 2024). While AI optimizes workflow, concerns remain about its impact on human composers (Udoma, Peter, oral interview, 2024). Beyond efficiency, AI has democratized music production, allowing emerging artists to create high-quality compositions at lower costs (Anggraeni, Sulistyowati, and Husda 64; Bell 26).

Industry professionals have mixed reactions. Film composer John Smith credits AI for streamlining his workflow, enabling a greater focus on refining compositions (Pace 2). Sound designer Sarah Johnson highlights AI's role in crafting dynamic soundscapes, expanding creative possibilities. However, producer Michael Thompson warns against the loss of originality, emphasizing the need to balance AI with artistic integrity. These case studies present both opportunities and challenges. AI enhances efficiency, democratizes music creation, and expands artistic expression. However, ethical concerns about authenticity, employment, and creative ownership persist. As AI continues to shape Nigeria's music industry, a balanced approach is necessary to ensure responsible and sustainable integration.

5. Ethico-Cultural Implications of AI and Algorithm-Generated Music

Music production involves ethical challenges related to copyright, cultural sensitivity, technology and sustainability. Copyright laws

protect creators' rights, ensuring recognition and fair compensation (Samuelson 3). However, digital disruption raises concerns about equitable remuneration, particularly for independent artists. Cultural sensitivity requires ethical collaboration to prevent commercialization and exploitation of traditional music (McIntyre 45). AI-generated music complicates authorship, as it replicates human compositions, challenging traditional notions of creativity and artistic involvement.

a. Ethical Impacts

AI-generated music raises legal and ethical concerns regarding ownership, copyright, and human creativity. Since AI lacks personhood, its outputs are valuable yet fall into a legal gray area. Nigeria's intellectual property laws do not explicitly address AI-generated works, creating gaps in rights protection (Onibere and Ottuh 103). AI-driven automation lowers production costs but threatens job security in the Nigerian music industry. Additionally, AI often replicates popular patterns, risking homogenization and stifling originality. Given Nigeria's rich musical traditions, AI's influence may dilute cultural heritage.

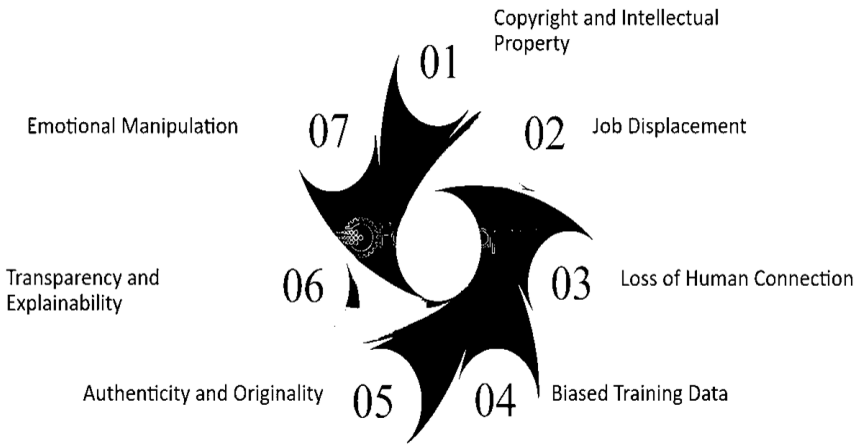

Fig. 5: The ethical implications of AI and algorithm-generated music
Source: Faster Capital (6).

To balance innovation and fairness, policies should ensure equitable competition between AI and human-created music. Quotas for locally produced content and collaboration frameworks could protect artists. AI-generated music depends heavily on data, raising privacy and security concerns. Nigeria's developing data protection laws leave room for potential misuse by corporations. Bias in training datasets is another issue, as AI may favor dominant cultural groups, limiting diversity (Lasisi 112). Ensuring AI is trained on diverse musical styles is crucial for maintaining artistic representation.

b. Cultural Consequences

AI-generated music challenges creativity, artistic roles, and cultural identity while raising ethical dilemmas about originality and ownership (Festus Omonode, oral interview, 2024). In Nigeria, where music is deeply tied to heritage, concerns arise that AI may standardize styles, reducing the uniqueness of genres like Juju, Highlife, and Fuji (Efurhievwe and Okpeki 241). AI disrupts traditional music creation, affecting historical and cultural connections (Adekunle, Gold, oral interview, 2024). Algorithmic production influences Afrobeat and Fuji, potentially stripping them of cultural authenticity (Lasisi 110). AI-generated compositions may emulate Nigerian styles but lack true cultural context, raising concerns about appropriation and commodification.

Economically, AI reduces demand for human singers, producers, and composers, benefiting larger, tech-savvy record labels while disadvantaging independent artists (Ajereh, Collins, oral interview, 2024). Despite these concerns, AI also presents innovation opportunities. Nigerian artists can leverage AI to explore new sounds, pushing creative boundaries while preserving cultural narratives. Future policies should focus on ethical AI use, artist protection, and cultural preservation to ensure AI complements rather than replaces human creativity.

6. AI in Music Production: A Creative and Critical Approach

AI is transforming Nigeria's music industry by enhancing creativity, streamlining production, and democratizing access to

music tools. AI automates tasks like mastering and mixing, with tools such as LANDR and iZotope's Neutron AI improving efficiency (Pace 5). Emerging artists benefit from AI-powered composition suggestions, genre blending, and audience-targeted distribution. Companies like Apple and Spotify use AI to optimize music promotion, leveraging listener data to curate personalized playlists (Faster Capital 3). AI-generated content also improves audiovisual experiences, producing emotionally resonant sound effects and compositions..

As illustrated in Fig. 4, the prospects for artificially intelligent content in sound effects and music are favourable, since developments in deep learning algorithms for music as well as emotional analysis allow AI systems to produce realistic and emotionally resonant material. This improves the overall effect of audiovisual encounters by eliciting certain emotions. The amalgamation of human creativity with AI technology will be fluid, with AI systems evolving to be more intuitive and sensitive, facilitating effortless collaboration between artists and AI tools. The interaction between human intuition and AI support will provide distinctive compositions as well as sound effects. AI-generated material will provide tailored musical experiences, accommodating specific preferences and fostering an immersive environment. AI technology will promote cross-disciplinary collaborations among artists, scientists, and technologists, merging augmented reality, virtual reality, and neuroscience.

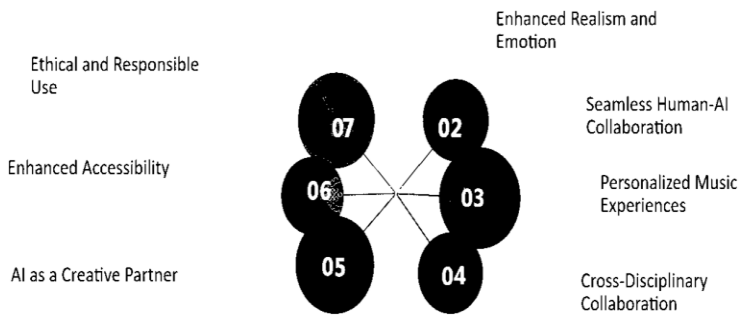

Fig. 4: Illustrating AI and algorithm-generated music prospects
Source: Faster Capital (3).

AI fosters cross-disciplinary collaborations, merging music with augmented reality, virtual reality, and neuroscience. As AI systems evolve, they will act as creative partners, refining human intuition through seamless collaboration. AI-generated material broadens accessibility, enabling diverse artists to explore new sonic landscapes. However, balancing AI's efficiency with artistic authenticity remains crucial.

AI-generated music offers efficiency but raises ethical and economic concerns. Profit concentration among major labels limits fair compensation, while AI-driven platforms risk marginalizing niche artists and homogenizing music (Efurhievwe & Okpeki 253). Overreliance on AI may devalue human creativity, favoring financial success over artistic depth. Legal frameworks must address copyright, ownership, and transparency. A hybrid model based on human involvement could balance innovation with artistic integrity. Nigerian genres like Juju and Afrobeat risk dilution if AI dominates mainstream production (Ottuh, Omosor & Abamwa 117). Artists must integrate AI responsibly while preserving their unique creative identities.

Transparency in AI-generated music is another critical issue, as many systems function as "black boxes." Regulators must ensure clear data usage policies and ethical AI implementation. Emotional manipulation through AI-generated content requires stricter oversight. Governments should establish legal distinctions for AI-created works, determining whether AI is a co-author or if rights belong to designers and operators. Policy reforms should safeguard intellectual property, ensure equitable artist compensation, and promote responsible AI use. While AI expands creative possibilities, ethical oversight is essential to preserving artistic diversity and cultural heritage.

7. Conclusion

AI-generated music presents both opportunities and challenges for Nigeria's music industry. While it enhances creativity and streamlines production, it raises ethical concerns about authorship, originality, and the diminishing role of human artists.

As AI increasingly blurs the line between human and machine-generated compositions, existing intellectual property laws must adapt to address ownership and copyright issues. AI-driven music risks homogenizing sounds, favoring certain genres while suppressing cultural diversity. This is particularly significant in Nigeria, where music is deeply tied to identity and social expression. To prevent AI from undermining Nigeria's rich musical heritage, policymakers, industry leaders, and artists must collaborate on regulations that protect intellectual property, support artists, and ensure ethical AI use. Future efforts should focus on policy development, cultural preservation, ethical guidelines, and artist support. A balanced approach will allow AI to drive innovation while maintaining diversity and honoring Nigeria's musical traditions.

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