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In Tune with Ethics: Responsible Artificial Intelligence and Music Industry

Etik Kurallara Uygun: Sorumlu Yapay Zeka ve Müzik Endüstrisi

Abstract

The current study initiates a discussion on the ethical implications of artificial intelligence (AI) in the music industry, analyzing nine ethical statements within the framework of OECD AI Principles. The study identifies a growing emphasis on transparency, human-centered values, fairness, and privacy across these guidelines. While transparency is deemed crucial for fostering trust in AI-driven music systems, the preservation of human values and the distinction between human and AI-generated works emerge as key considerations. The article highlights a gap in addressing the environmental impact of generative AI systems within the music industry. The conclusion calls for ongoing research and dialogue to address emerging challenges, emphasizing multi-stakeholder collaboration and informed public discourse to navigate the transformative potential of AI while upholding ethical values in music creation.

Öz

Bu çalışma, müzik endüstrisinde yapay zeka etik sorunlarına dair bir tartışmayı başlatarak, OECD yapay zeka İlkeleri çerçevesinde dokuz etik ifadeyi analiz etmektedir. Çalışma, bu yönergeler içinde şeffaflık, insan-merkezli değerler, adalet ve gizlilik konularında artan bir vurgu tespit etmektedir. Yapay zeka tarafından yönlendirilen müzik sistemlerine güven oluşturmak için şeffaflığın önemli olduğu kabul edilirken, insan değerlerinin korunması ve insan ve yapay zeka tarafından üretilen eserler arasındaki ayrım önemli konular olarak ortaya çıkmaktadır. Makale, müzik endüstrisinde üretken yapay zeka sistemlerinin çevresel etkilerini ele almadaki bir boşluğa dikkat çekmektedir. Ortaya çıkan zorlukları ele almak için sürekli araştırma ve diyalog çağrısında bulunarak, yapay zekanın dönüştürücü potansiyelini yönlendirirken müzik yaratımında etik değerleri korumak için çok taraflı işbirliğini vurgulamaktadır.

Keywords
Artificial intelligence, music industry, ethics, OECD, generative AI

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Yapay zeka, müzik endüstrisi, OECD, etik, üretken yapay zeka

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Introduction

Artificial Intelligence (AI) is a fundamental aspect of various sectors that have embraced modern information technologies (Haenlein & Kaplan, 2019). While the roots of AI extend back several decades, there is a widely shared recognition of the current paramount importance of intelligent machines equipped with learning, reasoning, and adaptive capabilities. These capabilities enable AI methods to achieve remarkable performance levels in tackling increasingly intricate computational tasks, playing a crucial role in the ongoing development of human society. The sophistication of AI systems has advanced to the point where minimal human involvement is necessary for their design and implementation. In areas such as medicine, law, or creativity, where AI-derived decisions impact human lives, there is a growing need to comprehend how these decisions are generated by AI methods (Goodman & Flaxman, 2017).

As artificial intelligence (AI) technology advances, its potential applications in the music industry are becoming increasingly evident. However, it raises questions regarding the role of the human artist and related economic and philosophical issues. Like many technological advancements, the reception of these innovations is a mix of optimism from those excited about new creative possibilities and pessimism from those predicting the demise of human composers (Reijers & Coeckelbergh, 2020). In response, multiple voices from leading AI practitioners in the music industry present transdisciplinary perspectives on emerging ethical questions. The concentrated endeavors of a wide range of participants in formulating AI principles and policies underscore the necessity for ethical direction and reflect their keen interest in influencing AI ethics to align with their individual priorities.

AI has already been used to create entire albums and compose new music pieces, and the possibilities for further innovation are seemingly endless. In the year 2023, there has been a notable rise in the presence of extensive music generation models, MusicLM by Google, AudioCraft by Meta, Stable Audio by Stability AI, and enhanced user interfaces built upon these models such as Sounds. Studio, BandLab SongStarter, Riffusion, Kits AI, and subsequent industry partnership agreements entering the market. An unprecedented combination of commercial magnitude and technical excellence characterizes this trend. However, with this innovation potential comes a range of ethical implications that must be considered. Although AI presents a unique opportunity for musicians to shape and transform existing modes of creative expression, computational creativity, a well-established domain in computer science, has witnessed a surge in interest regarding ethical considerations linked to the technological advancement of generative models.

In response to societal concerns about AI, both national and international organizations have formed specialized expert committees. These committees, tasked with creating policy documents, include the European Commission's High-Level Expert Group on Artificial Intelligence (AI HLEG), the OECD's expert group on AI in Society, Singapore's Advisory Council

on the Ethical Use of Artificial Intelligence and Data, and the United Kingdom House of Lords' select committee on Artificial Intelligence. These committees, in line with their institutional roles, have generated or are in the process of creating reports and guidance documents on AI. A similar trend is observed in the private sector, particularly among corporations heavily reliant on AI for their operations. Notably, in 2018, companies like Google and SAP publicly released AI guidelines and principles.

In the past few decades, there has been a growing focus on ethical and political implications related to AI, but surprisingly, there has been a lack of comprehensive research on the impact of AI in the field of music until very recently. This article analyzes nine ethical statements showcasing an impressive range of industry representations regarding music, in accordance with OECD AI Ethic principles. These guidelines have garnered support from over 500 music entities, including major labels, publishers, performing rights organizations, underground labels, and artist advocacy groups, highlighting a comprehensive and diverse endorsement. In order to discern recurring patterns within the discourse's central themes, I delineated nine fundamental ethical domains. These ethics statements are crafted in a manner resembling press releases, aiming to convey strategic roadmaps, enhance public relations, and attract media focus, rather than serving as unequivocal commitments to comprehensive ethical behavior.

Definition of Artificial Intelligence

To elucidate the multifaceted nature of the term AI, it becomes imperative to delineate a spectrum of definitions that recognize the diverse and occasionally conflicting connotations associated with this technology. Various entities engage in AI processes, prompting an exploration of the primary factions or 'tribes' within the AI domain. Within this spectrum, particular emphasis is accorded to Machine Learning (ML) and its subset, Deep Learning, given that their legal implications serve as a foundational aspect of this examination. Despite the focus on 'narrow AI' within the discourse surrounding AI music systems, a subsequent analysis discerns conceptual nuances differentiating narrow AI from Artificial General Intelligence (AGI) and Artificial Superintelligence (ASI). These distinctions in AI, notably AGI and ASI, contribute to the examination of theories pertaining to technological determinism and transhumanism. Consequently, these theoretical frameworks play a pivotal role in shaping the future perspectives of key stakeholders within the music ecosystem (Clancy, 2021).

The term AI carries various meanings, and it's important to clarify these distinctions. Different entities utilize AI processes, and I will explore the main schools or groups of AI. The European Commission's independent AI HLEG Group (HLEG) has recently revised their definition of AI: ''Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured

or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions" (AI HLEG, 2019a).

Artificial Intelligence and the Music Industry

The introduction of ChatGPT and analogous software has sparked a resurgence of interest in the realm of artificial intelligence (AI), particularly within the domain of machine learning. In the context of machine learning, extensive datasets are input into designated programs, which subsequently acquire the capability to perform advanced functions, including analysis and conversational interactions, through the utilization of learning algorithms and probabilistic outcomes. Despite the predominant focus in media coverage on ChatGPT's adept human-like summarization and conversational skills, it is noteworthy that various forms of AI, including machine learning, have been integral components of software applications since the inception of the 1950s.

Upon initial examination, the intersection of artificial intelligence (AI) with the realm of music, particularly classical music with its reliance on historical conventions, may appear dissimilar. Nevertheless, the application of AI has captivated the attention of music theorists and composers for a duration exceeding half a century. Schüler elucidates the historical trajectory of employing computers for generative musical purposes, citing an instance in 1957 when Frederick P. Brooks utilized an early computer at Harvard University to ingest hymn tunes, subsequently synthesizing novel melodies from the acquired dataset. As posited by Schüler, the 1960s witnessed an amplification in the utilization of computers for music analysis, predominantly focusing on folk songs due to their comparative simplicity and brevity in contrast to multipart art music (Schüler, 2007).

AI is currently significantly reducing the costs of music production in real-time, leading to the development of unique sounds and disrupting the established norms of ownership and distribution in the industry. The surge in commercial music AI can be linked to the strides made in cutting-edge technologies such as neural networks and machine learning. The accessibility of distributed computing, facilitated by platforms like Amazon Web Services, Google Cloud, and Microsoft Azure, has further democratized the once-exclusive realm of robust processing power and extensive data storage capacities. However, these technological and infrastructural factors, while pivotal, don't paint the complete picture. Two additional elements significantly contribute to the recent flourishing of the music AI sector. Firstly, the advent of adversarial networks and other innovative models has played a crucial role. These advancements have enhanced the capabilities of generative and adaptive music algorithms, making them more sophisticated and effective than ever before. Secondly, the democratization of these

technologies is not merely a matter of computational resources; it's a story of empowerment for smaller entities. Previously reserved for large corporations, academia, or governmental agencies, the leasing of processing power and storage capacities is now within the reach of smaller firms, fostering a more diverse and dynamic landscape in the music AI industry. Together, these factors converge to fuel the remarkable growth observed in this sector in recent times (Drott, 2020).On the other hand, the surge in music AI's quality and quantity owes much to the increasing availability of training data for machine learning. This surge is partly due to the extensive digitization of human knowledge in recent decades, and the pervasive integration of digital surveillance and data capture technologies into daily life (Zuboff, 2019). Unlike the earlier dominance of symbolic AI, where advancements relied on sophisticated algorithms, the progress in music AI is more aligned with the shift towards machine learning in the past 25 years. Rather than intricate algorithms, the emphasis is now on massive datasets that fuel machine learning systems.

Responsible Artificial Intelligence

Responsible Artificial Intelligence (Responsible AI) constitutes a methodology for the creation, evaluation, and implementation of AI systems with a focus on ensuring safety, reliability, and ethical integrity. It represents a paradigm shift in the development and deployment of AI technologies, emphasizing ethical considerations and accountability. The development and deployment of AI systems entail a myriad of decisions, and Responsible AI serves as a guiding framework to facilitate judicious decision-making. This multifaceted concept encompasses a spectrum of principles and practices to ensure that AI systems adhere to technical standards and align with broader societal values. Throughout the entire lifecycle of AI, from the conceptualization and design stages to training, deployment, and ongoing impact assessments, Responsible AI seeks to embed ethical considerations into every facet of development. One of the central tenets involves the proactive identification and mitigation of biases, emphasizing fairness and avoiding discrimination. Transparency and explainability are also integral, requiring that AI systems operate in a manner that is comprehensible to users and stakeholders.

Moreover, Responsible AI advocates for accountability mechanisms, ensuring that positive outcomes and unintended consequences are appropriately attributed. In academic discourse, the ongoing dialogue surrounding Responsible AI contributes to the evolution of a robust ethical framework that guides researchers, developers, and policymakers in navigating the intricate landscape of AI innovation. This discourse recognizes the dynamic nature of technology. It emphasizes the need for continual adaptation and refinement of ethical principles to address emerging challenges and opportunities in the evolving field of artificial intelligence.

Over the years, the Organisation for Economic Co-operation and Development (OECD) has engaged in empirical and policy endeavors concerning AI, commencing with a Technology

Foresight Forum in 2016 and an international conference titled "AI: Intelligent Machines, Smart Policies" in 2017. The OECD's efforts encompass analytical and measurement work, offering insights into the technical landscape of AI, mapping its economic and social impacts, identifying key policy considerations, and cataloging AI initiatives at both national and international levels.These endeavors underscore the imperative to establish a stable policy framework at the international level, fostering trust and widespread adoption of AI within society. Against this backdrop, the OECD Committee on Digital Economy Policy (CDEP) has resolved to develop a preliminary Council Recommendation. This recommendation aims to advocate for a human-centric approach to trustworthy AI, encouraging research, preserving economic incentives for innovation, and encompassing all relevant stakeholders.The OECD's principles for responsible AI are a set of guidelines aimed at promoting trustworthy and ethical AI development. The principles include accountability, robustness, security and safety, transparency and explainability, human-centered values and fairness, inclusive growth, sustainable development and well-being.

Accountability

In the realm of AI ethics, the terms "accountability," "responsibility," and "liability" are nuanced concepts, each bearing distinct meanings that can vary across cultures and languages. Broadly, "accountability" implies adherence to ethical or moral expectations, guiding individuals or organizations in their actions, with an obligation to elucidate the rationale behind decisions. In the event of adverse outcomes, accountability entails remedial measures to enhance future results. "Liability," on the other hand, primarily concerns legal repercussions arising from an individual's or organization's actions or inactions. "Responsibility" encompasses ethical and moral expectations, existing in both legal and non-legal contexts, establishing a causal connection between an actor and an outcome.Given these nuanced distinctions, the term "accountability" aptly encapsulates the essence of the principle under consideration. In this context, "accountability" denotes the anticipation that organizations or individuals will ensure the effective functioning of AI systems across their lifecycle. This involves designing, developing, operating, or deploying AI systems in alignment with respective roles and relevant regulatory frameworks. The demonstration of accountability is manifested through actions and decision-making processes, such as furnishing documentation on pivotal decisions throughout the AI system lifecycle or permitting auditing when warranted.

Robustness, Security and Safety

Addressing complex AI systems' intricate safety and security challenges is imperative for instilling trust in artificial intelligence. Within this context, robustness denotes the capacity to endure or overcome adversities, encompassing risks related to digital security. This guiding

principle asserts that AI systems must not present unreasonable safety risks to digital or physical security under normal or foreseeable usage conditions or potential misuse throughout their entire lifecycle. Pre-existing legal frameworks, notably in areas like consumer protection, delineate parameters defining an unreasonable safety risk. In collaboration with relevant stakeholders, it is incumbent upon governments to deliberate on the applicability of these regulations to AI systems.

Transparency and Explainability

The term "transparency" encompasses various dimensions. In the context of this principle, the primary emphasis is on the disclosure of AI utilization, particularly in predictive, recommendatory, or decision-making scenarios and when users engage directly with AI-powered agents like chatbots. The degree of disclosure should correspond to the significance of the interaction. The increasing prevalence of AI applications may influence disclosure's feasibility, effectiveness, or desirability in certain instances.

Moreover, transparency involves providing individuals with the means to comprehend the developmental, training, operational, and deployment aspects of an AI system within its relevant application domain. This empowers consumers to make informed decisions. Additionally, transparency extends to furnishing meaningful information and elucidating the information's nature and rationale. However, it generally does not extend to disclosing proprietary source code or datasets, as these may be technically intricate or subject to intellectual property protection, including trade secrets. Another facet of transparency pertains to promoting public discourse and establishing dedicated entities, as necessary, to enhance general awareness and understanding of AI systems, fostering increased acceptance and trust.

"Explainability" denotes the capacity to enable individuals affected by an AI system's outcomes to comprehend the underlying processes. This involves presenting accessible information to those impacted by an AI system's outcomes, allowing them to challenge the results, including the factors and logic contributing to the outcome. Nevertheless, achieving explainability can vary based on contextual considerations, such as the significance of the outcomes. Mandated explainability may compromise accuracy and performance for certain types of AI systems, introduce privacy and security concerns, and escalate complexity and costs, potentially disadvantaging smaller AI actors.Therefore, when AI actors explain outcomes, it is prudent to convey the main decision factors, determinants, data, logic, or algorithms underpinning the specific outcome. This should be communicated in a clear and straightforward manner, tailored to the context, facilitating individuals' comprehension and ability to challenge outcomes while respecting obligations related to personal data protection.

Human-centered Values and Fairness

The development of AI should adhere to human-centered values, encompassing fundamental freedoms, equality, fairness, the rule of law, social justice, data protection, privacy, consumer rights, and commercial fairness. Specific applications or uses of AI systems carry implications for human rights, introducing the potential for intentional or inadvertent human rights violations and human-centered values as outlined in the Universal Declaration of Human Rights. Therefore, it is imperative to advocate for "values-alignment" in designing AI systems, incorporating suitable safeguards and allowing for human intervention and oversight as per the contextual requirements. This alignment ensures that AI systems' behaviors consistently uphold and advance human rights and align with human-centered values throughout their operational lifespan. Adherence to shared democratic values is crucial for cultivating public trust in AI, facilitating its deployment for the protection of human rights, and mitigating discrimination or other unjust and unequal outcomes. Moreover, this principle recognizes the significance of measures such as Human Rights Impact Assessments (HRIAs), human rights due diligence, human determination (i.e., a "human in the loop"), ethical conduct codes, as well as quality labels and certifications. These mechanisms are instrumental in fostering human-centered values and promoting fairness within the realm of AI.

Inclusive Growth, Sustainable Development and Well-being

This principle prioritizes guiding AI development and application towards positive societal and environmental outcomes. Trustworthy AI serves as a key enabler for inclusive growth, sustainable development, and global well-being objectives. Its potential, for instance, lies in contributing to the Sustainable Development Goals (SDGs) through advancements in education, healthcare, transportation, agriculture, and sustainable city development. However, responsible stewardship necessitates addressing potential concerns regarding inequality and technological access disparities. The OECD Framework for Policy Action on Inclusive Growth provides a valuable anchor, offering guidance for inclusive policy implementation and ensuring broader societal participation in technological progress. Furthermore, we must acknowledge the inherent risk of perpetuating existing biases through AI systems. Vulnerable and underrepresented groups, such as ethnic minorities, women, children, the elderly, and low-skilled individuals, are particularly susceptible to disparate impacts. This risk is especially pronounced in low- and middle-income countries. Yet, this principle also highlights the immense potential of AI to empower all members of society and actively address existing biases. Responsible stewardship, throughout the AI lifecycle, underscores the role of stakeholders in promoting the development and deployment of AI for positive outcomes while implementing appropriate safeguards. Defining these beneficial outcomes and their optimal pathways necessitates multidisciplinary and multi-stakeholder collaboration, alongside informed public dialogue. Such

inclusive engagement fosters broader public trust and understanding of AI, a crucial element in maximizing its societal benefits. In essence, this principle advocates for a nuanced approach to AI advancement, emphasizing its capacity to drive positive change while proactively mitigating associated risks. Responsible stewardship ensures that AI remains a force for collective progress, contributing to a more equitable and sustainable future for all.

Artificial Intelligence Music Ethic Principles and Guidelines

In this section, I will compare nine artificial intelligence ethical guidelines and examine them within the framework of OECD ethical principles. These are, from past to present, Ethical Dimensions of Music Information Retrieval Technology (2018), Ethics Guidelines in Music Information Retrieval (2019), Human Artistry Campaign (2023), An Ethical Approach for Music and AI (2023), How ASCAP Is Helping Music Creators Navigate AI (2023), UK Music Policy Position Paper on Artificial Intelligence (2023), Global Creators and Performers Demand Creative Rights in AI Proliferation (2023), YouTube: Our principles for partnering with the music industry on AI technology (2023), IMPF Ethical Guidelines on generative Artificial Intelligence (2023). While no singular ethical principle is universally present across the music artificial intelligence ethical guidelines, a discernible trend is emerging toward converging certain principles. Notably, transparency, human-centered values, fairness, and privacy are gaining prominence, referenced in over half of the sourced documents.

Transparency, as featured in all guidelines except the ethical guidelines of YouTube, stands as a paramount tenet in the realm of artificial intelligence, conferring multifaceted benefits to its stakeholders in the music industry. As AI algorithms increasingly contribute to the curation, recommendation, and even composition of musical content, elucidating the underlying processes becomes pivotal.Fundamental to establishing trustworthiness in AI is the transparent disclosure of algorithms and a clear delineation of the origins of a given work. Transparent disclosure of the algorithms' decision-making criteria, data sources, and potential biases is instrumental in fostering trust among both musicians and audiences. This transparency not only fortifies the credibility of AI-driven systems but also enables musicians to comprehend and influence the creative trajectories mapped by these technologies. Moreover, in an industry where artistic expression is deeply intertwined with individual and collective identity, a transparent approach to AI implementation safeguards against inadvertent biases that may impact the diverse and subjective nature of musical preferences. Thus, within the music industry, the scholarly discourse on transparency emerges as an essential conduit for navigating the ethical dimensions inherent in the symbiotic relationship between AI technologies and musical creativity.

Human-centered values, as substantial as transparency, featured in all guidelines except Ethics Guidelines in Music Information Retrieval (2019). Integrating AI in the music industry

raises profound questions about preserving human values within the creative landscape. As technology evolves, it is imperative to safeguard the fundamental role of human ingenuity in shaping musical expression. The intricate interplay between AI and human creativity necessitates a nuanced consideration of the ethical implications surrounding the distinction between human-created and AI-generated musical works. In navigating this complex terrain, a judicious approach involves delineating clear criteria to differentiate between AI applications that assist human creators and those that operate autonomously in a generative capacity. This demarcation is essential to uphold the integrity of copyright protection, ensuring that the unique value derived from human intellectual creativity, skill, labor, and judgment remains paramount. Moreover, an unambiguous labeling system for AI-generated musical works is imperative to provide transparency to consumers and prevent dilution of the recognition and compensation accorded to human-created works. In this discourse, the emphasis lies on preserving the authenticity, identity, and cultural significance embedded in human values, even as the music industry engages with the transformative potential of AI technologies.

On the other hand, none of the ethical guidelines mentioned above include sustainable development and the consideration of the environmental impact of generative AI systems used within the music industry, from energy consumption to hardware lifecycle.

Conclusion

The burgeoning application of artificial intelligence (AI) in the music industry necessitates a comprehensive ethical framework to navigate the intricate interplay between technological innovation and artistic expression. This paper has examined nine prominent ethical statements alongside the OECD AI Principles, revealing a nascent convergence towards transparency, human-centered values, fairness, and privacy principles. While these principles provide a valuable foundation for responsible AI development and deployment within the music domain, further research and dialogue are crucial to address emerging challenges and opportunities. Notably, ongoing discourse must grapple with the complex questions surrounding ownership, attribution, and the potential blurred lines between human and AI-generated musical works. Moreover, a nuanced understanding of the potential environmental impacts associated with AI music systems should be integrated into future ethical frameworks. By fostering multi-stakeholder collaboration and informed public dialogue, the music industry can harness the transformative potential of AI technologies while upholding the fundamental values of human creativity, fairness, and environmental sustainability. This ongoing endeavor will pave the way for a future where AI serves as a synergistic partner in shaping a vibrant and ethically sound musical landscape.

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