Postscript on the Musics of Control*

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Abstract

This paper traces how "control" is socially coded in contemporary music technology, and offers an account of the circuit of control to bridge the conceptual gap between the sociopolitical and the technical. Formally, the paper adopts a triptych that *deliberately echoes Deleuze's influential "Postscript" in title and cadence*: *Historical*, *Logic*, *Programming* to progress its analysis. The analysis redirects attention from the controllability of intelligent systems to the social formations through which control is allocated and recognized. To frame this shift, the paper theorizes the *gear economy*—a lens set alongside the much-frequented concept gig economy in sociology—to explain how AI-music tools (e.g., Suno, Udio) are legitimated through existing music gear markets. The claim is coalition rather than addition: AI tools fold into pre-existing markets that price and credential controllability. On this basis, the paper calls for design-oriented ethical interventions that speak to technologists, producer-musicians, and the general public, making the circuit of control visible and reconfigurable, and redirecting control toward humans so that AI music tools augment rather than shrink creative agency.

Keywords: gear economy, AI music tools, control, human-machine relations, AI ethics

1. HISTORICAL

This is music for machines
This is what I see in dreams

Grimes's Coachella 2024 breakdown made "control" visible as a public test with social stakes. Mid-set, a technical fault doubled the playback speed; the machine, rather than the musician, set the pace as she repeatedly restarted "Music 4 Machines" and shouted in frustration (McLaren, 2024). In her apology, she attributed the failure to delegated prep, noting she had "outsourced essential things like Rekordbox BPMs and letting someone else organize the tracks on the SD card etc.," and vowed to personally handle "critical tasks" going forward (Grimes, 2024). A year later, around the release of the new single "Artificial Angels" in October 2025, she wrote on X to clarify that only the intro/outro voice used AI and that she was "opposed to AI music in some forms" (Grimes, 2025), an oscillation that sits alongside her being vocal about AI—e.g., being recognized by TIME and calling it "magic" when accepting a TIME100 AI Impact award in 2025 (Shah, 2025), being listed in TIME100 AI in 2023 (its first edition) (TIME Editorial Staff, 2023), and most prominently, inviting others to license a cloned "Grimes" voice via Elf.Tech with a 50% royalty split (Savage, 2023). In a single artist's arc, the on-stage audit of competence and the contract-level licensing of voice become two faces of how control in music technology is performed, allocated, and policed.

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* Title and triptych structure developed in dialogue with Deleuze's "Postscript on the Societies of Control".

Control in music has thus migrated from a rhetoric of individual mastery to a regime of continuous modulation across files, clocks, metering, and dashboards that spans musicians' training, studio recording, and on-stage performance (Théberge, 1997; Butler, 2014; Zagorski-Thomas, 2014). What counted as "skill" under studio or conservatory discipline—beatmatching by ear, score reading, session leadership—now relies on timing metadata, export settings, and live-recovery protocols whose failures are experienced as personal collapse (Lhooq, 2017; Finlayson, 2025). What can be effectively controlled has also shifted from human control over skills, voice, and instruments to machine control over sonic properties such as timbre, rendered extractable and recombinable through music information retrieval. To clone the timbre of a human voice is to position it as another controllable resource, technically analogous to long-familiar sampled instruments like piano or guitar, yet philosophically raising questions about the boundaries of human subjecthood. Long-standing disputes over copyright and sampling have already shown that sound is never separable from the systems that capture, store, and monetize it. We are not simply inside the system; the system is inside us. Before large-scale model training, the effective "dataset" for music production was the canon itself, a corpus of recordings and scores that organized training standards and inspirations, and determined who could quote and who could borrow.

If Grimes's Coachella collapse stages a human moment of "losing control," do AI tools in turn grant us more control through automation? This paper uses the case as a hinge to critically enter wider debates on control in music technology. It approaches control as an ethical question and traces how control is socially coded: to ask about control is to ask who is enabled to exercise what forms of control, under which conditions. Formally, the paper borrows its title and triptych structure—*Historical*, *Logic*, *Programming*—from Deleuze's seminal "Postscript on the Societies of Control" (Deleuze, 1992), on the claim that to follow the musics of control is already to follow the societies of control that give them form. In this sense, a "postscript" also reads as a foreword: a way of naming the present to anticipate its next modulation. The argument unfolds accordingly. Section 1 traces how control is socially coded in music technologies, showing how infrastructures of sound-making determine who and what can be controlled, and on what terms. Section 2 then names the gear economy as the market logic through which controllability is priced and credentialed across both pre-AI and contemporary AI-music tools, indicating that AI tools can replicate rather than replace existing regimes of control. Section 3 turns from diagnosis to design, asking what it would mean to "program" AI tools in both ethical and technical terms so that control(lability) does not further entrench inequality.

Music does not stand outside "societies of control". Who holds control and who is "seen" to hold it in the music industry, as well as in the tech and AI industries that design and deploy AI music tools, remains socially stratified and institutionally gated. The inequalities that organize these "societies of control"—along gendered, classed, and imperial lines—permeate the "musics of control" that determine what is made and heard, and by whom. On gender, longitudinal festival data from female:pressure show women's representation in electronic lineups rising from 9.2% (2012) to roughly 30% (2023), with non-binary artists about 3.3%—progress that still leaves men a majority and the largest festivals least balanced (female:pressure Trouble Makers, 2024). In the studio, women producers remain under 10% across a twelve-year sample, with 2024 dipping to 5.9% after a 2023 high of

6.5%; Producer of the Year nominations were effectively closed to women across the same period (2.9% of nominations to women across 13 years) (USC Annenberg Inclusion Initiative, 2025). Racialized global hierarchies compound these dynamics of gatekeeping control in the music tech industry. The UK Gen Z artist PinkPantheress has stated in a 2025 interview that audiences are less willing to listen to electronic music made by a Black woman (Catlin, 2025). Platform studies show that, on Global North platforms such as Spotify, non-Western music is often relegated to the margins (Hodgson, 2021). In machine-learning training pipelines, studies show that roughly 86% of total dataset hours and over 93% of researchers focus primarily on Global North music (Mehta et al., 2024). A companion summary reports over 94% of the more than one million hours analyzed are Euro-American, with only around 0.3% from Africa, 0.4% from the Middle East, and 0.9% from South Asia (MBZUAI, 2025). Ethnographic scholarship likewise shows the dominance of Global North technical standards: in Nairobi and wider Kenyan scenes, and in Cairo, recording infrastructures and platformization tied to Global North services such as Apple Music and Spotify shape how rights, recognition, and revenue are localized (Eisenberg, 2015; Sprengel, 2023; Eisenberg, 2025). Even in East Asia, where regional popular music enjoys relatively high global visibility, music education and local repertoires are organized through Western tonal and curricular norms, and recent work warns that AI-intensive music education risks a renewed form of digital recolonization (Yamaguchi, 2025). These dynamics mirror what Noble calls the replication of algorithmic oppression within algorithmic infrastructures (Noble, 2018). Taken together, even this partial body of evidence cautions that music, whether produced by generative AI or not, remains structured by oppressive regimes of control.

Do AI music tools overturn oppressive regimes of control when they seem to allow "anyone" to make music? Do they threaten existing musicians and producers? Before answering these questions, one must recognize that the seemingly democratized future in which "anyone" can make music is far from neutral: it rests on infrastructures organized by existing axes of inequality and demands that we ask what kinds of access are being opened, for whom, and with which biases are already built into platforms, datasets, and labor conditions.

AI music tools do not arrive in a technological vacuum. Musicians have long worked with machines. Placing AI music tools alongside the hardware and software that already structure contemporary music-making means asking how the gear economy has prepared the ground on which AI appears. The next section elaborates why AI music tools conceptually and practically come in tandem with existing music gear, and how they diverge from or converge with the economic realities that those tools already organize. By foregrounding human–machine relations in the context of contemporary music technology and AI design, feminist STS offers the necessary genealogy here. The remainder of this section draws on that body of work to show how "societies of control" are lived through specific human–machine couplings in which binaries organize contemporary human–machine relations, how feminist STS works to dismantle them, and why this lineage of critique must inform the design of AI music tools.

AI ethics scholarship grounded in feminist STS offers a way to program for control that is social as well as technical, in music and in AI more broadly. The aim here is not to exhaust that field but to mobilize some of its core insights on inclusivity and (in)equality, while remaining reflexive about the limits of the corpus drawn on. It is recognized that the dis-

cussion below necessarily leans on a largely Western feminist STS canon and cannot, within the space of this paper, do justice to the full range of decolonial scholarship with which it must be placed in dialogue. It does so, however, because this corpus has already powerfully critiqued the dichotomous mode of thinking that upholds white, capitalist, masculinist forms of supremacy permeating contemporary AI and the creative and tech industries. The seminal yet controversial Donna Haraway's cyborg manifesto (Haraway, 1991), long canonized in feminist STS, dismantles the organizing binaries—human/machine, nature/culture, male/female—of what she calls the informatics of domination. The cyborg is not a metaphor of fusion but a diagnostic of boundary breakdown, showing that "control" is neither a stable human possession nor a clean machine attribute; it is accomplished through networks of coupling, standards, and protocols that make subjects and objects co-constitutive rather than opposed (Haraway, 1991). Suchman, in parallel, contests the designer's binaries of user/tool, plan/action, and human/machine, arguing that what appears as autonomous control is a situated accomplishment: coordination across people, artifacts, and environments rather than execution of a pre-given plan (Suchman, 2007). Technofeminist accounts generalize this point to contemporary sociotechnical systems: where binaries are reinstated, hierarchy returns under the guise of neutrality (Wajcman, 2004). Together these positions provide the intellectual foundations for dismantling the axes of power that organize regimes of control in design processes and human–machine interaction, and they insist on a dynamic, relational understanding of power: neither "the human" nor "the machine" is static, but is continually shaped through heterogeneous assemblages of technologies, data, and people. They also prepare the analysis of the gear economy in Section 2, where gear assumes a quasi-subject status—valued, credentialed, and delegated agency—so that control appears not as a property of tools, but as a marketized relation binding humans and machines.

2. LOGIC

A pricing slider tells the story. In October 2025, Teenage Engineering launched a "pick-your-own-price" experiment for the OP-XY: a web slider starting at USD 1,699 and extending to USD 9,999, framed as a public inquiry into value, with the original list price set at USD 2,299 (Mullen, 2025; Teenage Engineering, 2025b). The OP-XY—produced by one of the most visible brands in the music-gear market—functions as a high-level point of entry that nevertheless imposes a steep learning curve. It is marketed as a portable production powerhouse, combining sequencer, synthesizer, and sampler functions for electronic music production and live performance (Teenage Engineering, 2025a). YouTube tutorials and online performance videos in which musicians demonstrate gear of this complexity routinely astonish viewers who are newly encountering music hardware. The wider world of gear is intricate and internally differentiated, spanning synthesizers, modulars, grooveboxes, drum machines, samplers, sequencers, pedals, effects units, and more broadly, music instruments in the traditional sense, with some devices blending functions and others designed for singular purposes. These instruments constitute core infrastructures not only for the performance and creative processes of electronic musicians—indeed, the very category of electronic music emerges from advances in synthesizers and modular systems—but also for the music industry at large, where studios are built upon hardware that sustains sound and recording quality.

If you could set the price of your favorite piece of gear, where would you stop the slider? If AI tools are to democratize sound design and music-making, do they erode the agency of working with gear or simply fold into what gear already is? This paper proposes the term "gear economy" as a lens for thinking through these questions, in parallel with the well-established concept of the "gig economy," highlighting how particular forms of gear sustain particular forms of gigs. The coinage arises from music technology—particularly the installations and devices that scaffold creative labor—but it also recognizes that many artistic fields have their material armature: garments and needles in fashion, cameras and rigs in film-making, brushes and pigment in painting, to name only a few and at the risk of flattening the dense, field-specific knowledge in each. Music technology is a field that particularly exemplifies this relation. The culture of "gear fetish" has been widely recognized among musicians and epitomized by gear acquisition syndrome (GAS) (Herbst and Menze, 2021; Bates and Bennett, 2022). Recent work has begun to theorize this culture directly: the book *Gear: Cultures of Audio and Music Technologies* shows how gear becomes "gear"— objects to be desired and defended—through their materials and manufacturing, but also through how they are displayed, discussed, and woven into canons of taste and tradition (Bates and Bennett, 2025).

Methodologically, this section frames AI music tools in critical coalition with existing gear cultures and the gear economy through a qualitative commentary grounded in ongoing, reflexive ethnographic observation of online producer-musician communities and offline live music scenes in the UK, rather than a quantitative model with immediately testable indicators. The aim is modest but, I suggest, necessary: first, to diagnose how control is currently organized and imagined within that relation; second, to make explicit a relation that remains underdeveloped in scholarship on music technologies; and third, to invite future empirical and collaborative work among researchers, practitioners, and developers. In this way, the gear-economy framework can be tested, refined, or contested, rather than leaving these circuits of control unexamined after the fact. This also acknowledges that, while the relations discussed here could in principle be quantified, it is through thick description of music industry practice that the lived textures of control come into view, especially given the romanticization of sunk cost in creative worlds and the dense human–machine relations that remain to be unpacked. References below to the "control-to-price" ratio, learning curves, subscription tiers, and related features should therefore be read as conceptual anchors, as directions for thinking about mechanisms of control and their aftermath, rather than as claims already secured by statistical evidence.

Just as sociological scholarship turns to the gig economy to understand how work proceeds under conditions of precarity and platform governance (Stefano, 2016; Srnicek, 2017; Vallas and Schor, 2020; Cloonan and Williamson, 2023), this paper turns to what is called the gear economy, focusing specifically on music gear, which rests on a particular technological and economic substrate and operates with an arguably modernist calculus: the more complex the machine a person can control, the higher its price; the more a device is taken to index intellectual refinement and the steeper the learning curve required to demonstrate competence, the more valuable it becomes. This valuation is not simply descriptive but also performative. Price and perceived controllability co-constitute a credential that can stand in, at least partially, for institutional accreditation. In platform-based music markets, where visibility depends on legible signals of expertise, acquiring complex gear functions as

symbolic capital and proof of work. Performances and short-form videos that foreground modular rigs, sequencers, or live looping then feed back into valuation by making controllability itself a spectacle (Woods, 2023). Under budget constraints and volatile income, DIY musicians invest in devices that promise a high "control-to-price" ratio, even when this means sunk learning costs or lock-in to particular sonic ecosystems. Comparative gear reviews on YouTube translate abstract properties of devices into practical affordances in home studios, often a laptop plus a minimal chain (Bell, 2014). What is bought is not only a device, a machine, but a structured set of possibilities, an investment pathway for converting limited time and attention into visible skill. At the same time, it would be too simple to treat pricing that indexes complexity or intelligibility as merely a matter of profit-seeking by manufacturers. For many musicians, these machines genuinely open up new sound-design practices, new modes of performance, and new ways of recognizing themselves as creative subjects.

At first glance, contemporary AI music tools sit at the other end of the spectrum. If high-end, hard-to-learn gear like the OP-XY reads as expert-exclusive, AI song generators are often framed as the opposite: frictionless tools that remove musical-knowledge barriers. On the surface, this breaks the tight coupling between visible technical labor and the capacity to produce releasable music. For producers and musicians who have navigated studios, home setups, software environments, and live rigs, this shift is disorienting: what if one could lend full control to the "tool" in order to make music, where previously one had to exercise full control over the "tool" in order to make it? If a track no longer demands years of learning routing, performing, arranging, and mixing, what becomes of the value once attached to those acts of control?

However, once we ask how control is attached to value—and how value is, in turn, attached to control—the apparent contrast between gear as indicating human control and AI tools as signaling automated control begins to collapse. This paper proposes a circuit of control in which both gear and AI music tools model and solicit control, monetarily and socially, through the fundamentally same epistemic inequalities and regimes of power that organize the music and tech industries. To clarify how this circuit of control operates, I first draw a conceptual line between control as it is lived by human musicians and control as it is encoded into AI.

1) Musicians make sense of their agency, technicality, and ability through control(lability): consider instrumental performance, vocal technique, DJ skills, or the forms of control over gear in knob turning, sequencing, and mastering, practices that are "visually and corporeally constructed, wherein musicians finesse their control over computerized expressions through their fingers, hands, feet, or other body parts" (Yang, 2025).

2) AI tools, in turn, prove their usability or usefulness through control(lability). Here "control" shifts from something the musician demonstrates to the functionality of the system, indexed by the breadth and fineness of its tunable parameters and the datasets that sustain it. The more they appear to automate the production process while pushing the human out of the loop, and the more tightly they seem to shape outputs, the more powerful they are taken to be.

However, as Section 1 has indicated, human–machine relations are not binary and static, but relational and processual: the models and datasets that underpin contemporary AI tools are themselves sedimented out of earlier and ongoing histories and canons of musicianship

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and production. In other words, the human route to control through acquiring and mastering gear is historically, epistemically, and practically entangled with the route through which AI systems learn what counts as musical quality and exercise control over its reproduction. The canons built by musicians are folded back into the models that now take part in deciding what music gets made. In this sense, by sharing the intellectual foundations of creative work, AI music tools do not stand outside the gear economy but converge with it as part of the same sonic world-building infrastructure, flattening some learning curves while introducing new forms of dependency and new thresholds of prompt-based expertise.

Yet this emergent mode of sonic world-building has been widely judged as flawed, in both its processes and its outcomes. Much commentary judges the results of AI music tools musically inadequate—The Verge's review of Suno V5 called it "technically impressive, but still soulless," with vocals "too close to perfection to be believably human" (O'Brien, 2025)—genre critics likewise argue that waves of "AI city pop" dilute the style's grammar, producing pastiche without feel or historical situatedness (Press-Reynolds, 2025). User reports and emerging empirical work likewise flag gaps in controllability. A recent user study of AI-assisted music production found that producers' workflows were constrained by three recurring issues: limited fine-grained control over core musical parameters (such as tempo alignment, structure, and key), restricted editability that made it difficult to iteratively refine or correct generated material, and only partial usability of outputs, since desired isolated parts often arrived entangled with unwanted sounds (Ronchini et al., 2025). Even as Suno advertises more openly controllable layers, online community feedback repeatedly describes current stem splits as artifact-prone and "not ready" for many workflows (u/peabody624 and r/SunoAI, 2024; u/Longjumping_Thing723 and r/SunoAI, 2025; u/RevolutionaryDiet602 and r/SunoAI, 2025). Technically, these reflections align with findings of an "interpretation gap" between text prompts and musical outcomes, and ongoing difficulty controlling structure, harmony, and performance parameters in text-to-music systems (Zang and Zhang, 2024; Melechovsky et al., 2024).

At the same time, recent listener studies show that people can actually struggle to tell AI music from human-made tracks in blind, Turing-like tests—especially when pairs are similar—complicating simple quality judgments (Figueiredo et al., 2025). A Deezer–Ipsos survey of 9,000 listeners across eight countries likewise reports that 97% of respondents failed to correctly identify which tracks were fully AI-generated in a three-track blind test (Deezer, 2025). Given that AI music is increasingly difficult for listeners to distinguish from human-made tracks, the point here is not to moralize its use as simply good or bad, or to frame it in terms of technological maturity. If soulfulness or humanness can itself be tuned as a design parameter in the near future, then these qualities no longer offer a stable ground for evaluation. The critical question becomes whether such systems are designed to expand human-in-the-loop agency—making decisions legible, revisable, and accountable—or whether they further displace and obscure human authorship.

A fixed and essentialist view of the gear economy, one that assumes traditional human–plus–gear musical assemblages uniquely confer creative agency and are superior to AI, sets up a false "human-plus-gear versus AI" dichotomy. In parallel, it risks fuelling an automation cult around prompt-based systems, whose underlying logic may counterproductively elevate a "no human in the loop" ideal that attempts to cut people out of music-making. The YouTube essay "I'm Done w/ Gear Review Videos" (Jordan, 2023),

which voices fatigue with "geartube" and gear-cult dynamics, prefigures a similar trajectory for AI music tools as users might begin to attach aura to music production that is tied to particular AI systems and model-driven forms of machine creativity. Building on the preceding analysis of an interlinked circuit of control, this paper contends that AI tools and emerging music technologies increasingly resemble gear, or at least converge toward a gear-mediated workflow on common ground. Just as hardware is routinely transformed into virtual forms of software with approachable interfaces, whether in the Juno lineage or modular systems now available as virtual synths and VCV racks, generative AI tools in music mark a further moment in a longer tendency within music technology: the translation of the accumulated history of recorded sound and production practice into opaque model weights, and the subsequent return of "control" to users through apparently plain, programmable, parameterized interfaces mobilized by prompts.

It is therefore unsurprising that Suno has moved beyond its initial single-step, prompt-to-track paradigm to introduce Suno Studio (Team Suno, 2025), a more explicitly human-in-the-loop environment that the team itself explicitly compares to traditional DAWs, which offers finer control and binds together the earlier conceptual line drawn between human and AI. More open affordances for editing ever more fine-grained musical elements gesture toward a softening of the previous technological black box. Should we, then, understand it primarily as a tool for human control—a form of gear that enters an existing production ecology and reconfigures where control sits? In this configuration, control does not simply move from AI to human or back again. Nor is it weighted toward either side. It is negotiated in their interaction. What is at stake is not merely a display of usability or of AI's capacity to segment elements that were previously locked into whole-track regimes, but an understanding of how creativity is shared and recognized across human–machine relations. As layers of accountability and modifiability are added to existing constraints and openings, the system comes to appear more controllable and therefore more useful – a form of usability that, I suggest, calls for critical celebration.

Within this frame, the gear economy names a contemporary market in which control(lability) is priced and legitimated across hardware, software, studio hires, model access, quotas and credits, and the terms of service that structure current AI music business models. The logic of economic charge is different though. Just as there are already enough pieces of hardware to assemble an entire production workflow, AI music tools pull on the other side of the market through credits that price each iteration of control. Text-to-song services often bill on a per-generation or per-edit basis and fold these uses into subscription tiers. Suno Studio, the DAW-like service, follows this model as well. By contrast, gear including hardware and software is frequently purchased through one-off outlays. The "control-to-price" ratio is therefore difficult to compare in a straightforward way, even before questions of audio quality arise. AI tools can seem to offer an open-ended horizon of paid retries, dispersing time and attention across repeated rounds of prompting and perfecting while consuming quotas in pursuit of an imagined ideal result drawn from an effectively infinite pool. Recognizing that comparison between the temporal and financial costs of gear-based workflows and prompt-based ones calls for user studies and systematic analyses that currently lie beyond the research scope of this paper, the next section turns to sketching ethically and economically informed design directions that might mitigate some of these emerging asymmetries.

3. PROGRAMMING

Programming names the passage from modulation to design. Deleuze describes the move from disciplinary enclosures to societies of control as a shift from bounded rooms to continuous modulation (Deleuze, 1992)—a term that, not coincidentally, circulates in electronic music and, in contemporary machine learning. At the interface level of music production, this modulation arrived as Logic—not only the title and argument of Section 2 but the digital audio workstation itself (Logic Pro)—where sequencing, MIDI "programming," and automation lanes render control as a timeline of parameters rather than a fixed rulebook. "Programming," then, is not merely coding; it is the normative act of (re)wiring interfaces, infrastructures, and institutions so that control becomes exposed, stable, and redistributable. It is also (re)writing the sociotechnical rules by which humans and machines share work, authorship, and risk.

What, then, might count as good programming for AI tools in music? Section 1 established that control is socially allocated. Section 2 traced how gear and AI tools are modelled on a logic that prices control, in both monetary and symbolic terms, in ways that feed back into whose music circulates, is heard, and is folded into training corpora. This section approaches programming this circuit of control in ethical and technical terms.

Ethical programmability: from machine functionality to social arrangements

From an ethical perspective, while there is broad agreement that contemporary AI systems are programmable, the salient question is whether they admit *social* programmability. With the cautions of Section 1 in mind, this paper argues that AI tools are not only a matter of machine functionality but also a human–machine problem and a social problem, and that they are therefore programmable at the level of social, economic, and political arrangements. To take this seriously is to return to feminist STS and decolonial scholarship, which have long shown that what appears as a human–machine problem is, first and foremost, a problem of how some humans are made more able, more technological, more properly creative than others, and how some musics are rendered culturally more desirable. These hierarchies are reiterated when particular listeners and genres are overrepresented in streaming habits and when training datasets disproportionately encode Global North repertoires and norms.

Academic research has already made these dynamics visible. What is lacking is their systematic uptake in design and engineering practice if the aim is genuinely equitable music technologies: who builds these systems? What are the gender ratios and diversity, equity, and inclusion commitments of the companies involved? What data infrastructures underwrite the models? The goal is to ensure that communities designing and using these systems are not tethered to masculinised, racialised, and Global-North musical dialects.

Technical programmability: accessibility with transparency

From a technical perspective, and in light of the ethical concerns as well as economic awareness, AI music tools should be programmed for accessibility, mitigating the reproduction of a gear-spectacle price logic in which price tracks novelty and spectacle more closely than access and usability. There do exist free or open-source software tools for music production or human-machine interaction (e.g., SOMAX 2 and live-coding languages), yet they

often impose substantial learning curves and intellectual thresholds. As integral parts of, or extensions to, the gear economy, and as systems intertwined with the technological underpinnings of AI music tools, they can remain technically unfriendly for much of the general public. AI music platforms such as Suno or Udio do provide alternative points of entry. The point is not to demand feature parity with existing DAWs, nor to claim that every parameter must be surfaced at once. Rather, the challenge is for developers—often deeply embedded in technical and musical communities—to design from the standpoint of users who do not share that expertise. Many people without formal musical training simply do not know what is possible within the service. Unknown unknowns persist as "we do not know what we do not know." Accessibility as a design commitment therefore indexes the degree of control afforded to human modulators.

On this basis, the paper argues that, both for accessibility and for sustainable economic viability, a practical design goal for AI music tools is to make editing intellectually and economically friendly for users at any level of musical knowledge as they work toward their own sense of an acceptable or ideal result. This paper does not attempt to articulate a full specification of a circuit-of-control scorecard, since designing such a scorecard for evaluating and improving AI music tools and their interfaces would require future research and collaboration with psychologists, neuroscientists, musicologists, and technologists. The discussion that follows instead sketches plausible directions for explanatory clarity in rewiring the circuit of control in AI music interfaces so as to better support creative agency.

Systems should be rendered plainly understandable and usable for non-experts *without* defaulting to intellectually or culturally hegemonic norms. Plain naming, for instance, cannot simply treat Western categories such as particular scales or equal temperament as neutral. How parameters are named, translated, and exposed is itself a site where cultural hegemonies can be replicated or unsettled. Designers might begin from cognitive science and culturally situated musicology, asking how rhythm, melody, and pattern are learned, imagined, and embodied across ages and contexts, rather than presuming a singular theory of music.

Interfaces should therefore resist the reflex to reproduce conventional DAW grammars, in which professionalization monopolizes the language of access and quietly reinstates barriers that AI tools have the potential to dismantle. Intuitive interactive design through multimodal explanations can reconfigure the presentation of musical parameters such as tempo, meter, key, voicing, timbre, dynamics, and arrangement so that they are navigable through multiple descriptive registers (for example, formal musical terms alongside affective or scene-based descriptors such as metaphors, visuals, emotions, mood, and texture), supported by real-time feedback and revision that help users grasp concepts they do not yet possess without lapsing into paternalistic instruction.

The "circuit" by which particular edits consume credits, quotas, or tokens should be made intelligible—and, where possible, more efficient—not only for users but also for firms bearing the material costs of compute. Concretely, platforms could publish plain-language mappings between common edit intents at multiple levels of abstraction (for example, "For 4 bars, gradually mellow the bassline") and their expected computational costs. Such transparency would let users plan creative workflows rather than stumble into quota burn, while enabling developers to design tiers that reward deliberate, exploratory iteration rather than compulsive regeneration.

Towards a more just control circuit

Nevertheless, these ethical and technical design directions do not float free of economic realities. Generative AI companies operate in harsh commercial environments, answerable to shareholders, venture capital, customers, and increasingly dense regulatory regimes. Any proposal for fairer AI and control interfaces must therefore register as more than moral exhortation. This paper sketches three routes that align ethical and technical programming with concrete incentives: (1) regulation and funding, where transparency and controllability become compliance requirements or eligibility criteria for grants and procurement in the creative sectors; (2) risk and reputation, where auditable, redistributable control can be positioned as safer and more defensible amid ongoing copyright and training-data disputes; and (3) market differentiation: in saturated AI music markets, firms can plausibly compete on the depth, clarity, and cultural sensitivity of human-in-the-loop control. These sketches do not exhaust possible incentive structures, but they situate the proposed ethical and technical programmability within economic, as well as cultural and political realities, a necessary condition for any well-meaning intervention to be implementable.

To conclude, this paper's contribution is to name a conceptual gap and to offer a framework for tracing the lineage of machines in music technology, bringing into view a circuit of control that is left implicit. This is not a neutral exercise in description: it is an insistence that what passes as "innovation" is always already routed through histories of access, exclusion, and valuation. Emerging AI tools can widen access to control for those marginalized by stratification and gatekeeping, yet they can also re-entrench old power if designed and governed to reproduce oppressive structures. AI is also not external to music's past or future: it expands the space of human modification, technically through new forms of steering and refinement work, and historically through reliance on gear-supported recorded-music lineages as training data. I propose the gear economy to name this convergence, where AI enters a coalition with existing gear markets that package and price control. Human–machine interaction can be generative when treated as collaboration rather than substitution, but only if its circuit of control is made visible through ethical and technical scrutiny. The paper calls for a more just control circuit, one that wires creativity into machines and returns machine affordances to human authorship in more transparent and revisable ways. It also invites future work that builds statistical evidence capable of auditing not only the technical friendliness of these tools but more importantly their ethical awareness. Further research should test and contest the framework empirically, and extend it into the considerations of the legal and institutional, so that human–machine creativity helps make a future that is liveable, and exciting, for the many.

Acknowledgments

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