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Uneasy Listening

Towards a Hauntology of AI-Generated Music

ABSTRACT This paper explores the cultural ramifications of music generated by artificial intelligence (AI). Deploying complex algorithms to create original music productions, AI's automation of human authorship may suggest a radically new sonic form. However, its creators have preferred to use its tools to mimic established musical genres from the past. As a result, notable AI-music programmers like composer David Cope and software developers Flow Machines have galvanized the public's interest in AI-generated music not by creating completely alien sonic forms, but by simulating popular styles like rock and classical music. Consequently, listeners often report AI music sounds unnervingly familiar rather than aesthetically inaccessible. I argue that it is precisely AI music's devotion to uncannily approximating its human forebears that makes it such an interesting object of contemporary sonic production. It also provides a useful historical parallel to a short-lived musical movement from the 2000s known as sonic hauntology. Much like AI programmers, producers of sonic hauntology applied digital technology to the sonic past. However, they confronted it in more deliberately political and subversive ways. Sampling sonic artifacts and cultural marginalia from the mid-20th century, sonic hauntologists created eerie soundscapes designed to challenge mass culture's erasure of history's political depth, or what Fredric Jameson famously referred to as late capitalism's cultural logic of postmodernism. While AI music has yet to be exploited in this way, I argue its inherently "uneasy listening" carries the potential to further sonic hauntology's project of repurposing the sonic past to estrange listeners from the present moment.   KEYWORDS artificial intelligence, hauntology, postmodernism, electronic music

It has become a well-established procedure of cultural criticism to bemoan the historical impasse facing cultural production under late capitalism. As the story goes, by the end of the 20th century, advanced capitalist societies abandoned modernism's emancipatory project of breaking with the past to construct a new world. Prominent theorists like Fredric Jameson[1] and Jean-François Lyotard[2] nominated this cultural condition "postmodernism." As a complexly aesthetic, political, and epistemological phenomenon, they argued that postmodernism dispensed with modernism's preoccupation with overcoming the strictures of tradition and forging radical new visions of the future. Instead of militantly rejecting the past, postmodernism preferred to playfully recombine its symbols and signifiers. It flattened historical struggles, catastrophes, and achievements into an assortment of easily consumable aesthetic objects. Such obfuscation of historical specificity was reflected in postmodern films, music, and novels—whose producers largely eschewed modernism's commitment to creating new artistic forms. The aesthetic pleasures of pastiche and bricolage were foregrounded instead. Even the more politically

oriented artistic movements followed this broader cultural climate, becoming suspicious of modernity's grand narratives of social progress and collective emancipation.

Since its initial diagnosis in the 1980s, little about postmodernism's broad outlines have changed. If anything, popular culture's obsession with the past and its casual dismissal of future imaginaries has only intensified in the intervening years. Echoing Jameson's earlier diagnosis, rock critic Simon Reynolds recently branded this cultural malady "retromania." As he describes in an interview:

> It's not that nothing new has happened—it's just that they haven't become a kind of wildfire phenomenon and there's always this kind of a qualifier . . . you always feel it's kind of relatively new, but those things are always outnumbered by a very large amount of recycling activity and stuff that's curating the past in some way. I wouldn't like to say there is nothing that's happened in the last decade that wasn't new to some degree. It's just diminished a bit . . . [3]

While Reynolds's assessment is perhaps more sanguine than fully dismissive of contemporary culture, his claim importantly underlines how it is not that formal innovation has vanished, but that *the rate of change* in cultural form has slowed down considerably. What afflicts artistic production is not the absolute absence of change, but a sense of creative enervation that slows down its ability to radically transform itself.

But amid the waning of innovations in cultural form, a remarkable series of technological breakthroughs continue to be achieved. From self-piloted drones to dramatic advances in machine learning and neural networks as well as drastic increases in computer processing capacities, the current waves of advancement in digital technology show no signs of abating. So why hasn't the accelerated rate of technological change corresponded to an increase in the rate of aesthetic innovation? Past technological revolutions were inextricably linked to revolutions in artistic form (i.e., film, photography, phonography, etc.).With the marvels of new scientific discoveries continuing to capture the public's imagination, why is there a dearth of new expressions to go along with them? Without offering anything so blunt as concrete solutions to this dilemma, I endeavor instead to explore a particularly suggestive example of the crisis itself.

The following essay explores the increasing divergence between cultural form's creative stultification and technology's ongoing advancement by focusing on AI-generated music. Harnessing the power of artificial intelligence (AI)[4] to produce new pieces of automated music, AI music has received increasing attention from the listening public. From industry-led experiments in Beatles-esque pop simulations to avant-garde deconstructions of thrash metal, the deployment of AI technologies to assist the human songwriting process (and sometimes to usurp it altogether) is approaching a watershed moment. Focusing on several key examples of AI-generated music, I will detail how most AI music is surprisingly devoid of radically new musical forms and more focused on creating faithful simulacra of the already recorded past. Rather than an alienlike sonic object that radically breaks with musical tradition, AI music offers an uncanny recapitulation of it instead. For this reason, the encounter between artificial intelligence and music culture is surprisingly illustrative of the very contradiction between the

most futuristic domains of science and the inadequacy of its expression by a depleted cultural imaginary.[5]

Though AI music's absorption by the past may mark it as yet another example of postmodernism's penchant for historical aestheticization, its remix of the sonic archive is far removed from the retro pastiche usually offered up by the music industry. Unlike the more digestible sounds of Adele's blue-eyed soul or Bruno Mars's emulation of 1980s R & B, listeners have largely rejected AI music's simulacra of music history as too unnerving, threatening, or even outright frightening. I argue that it is precisely AI music's disturbing nature that lends it a critical capacity to interrogate the aforementioned dilemmas that continue to plague cultural production. As I will demonstrate, the technological and historical logic of AI music solicits aural disturbances that momentarily loosen the hyper-commodified stupefaction imposed by postmodernity. This occurs, I argue, by repurposing the technologies used by capital to implode its cultural logic from within. While predictive algorithms, machine learning, and other forms of AI continue to jumble history's spatio-temporal coordinates and intensify its commodification, AI music harnesses the same computational tools to undermine rather than reaffirm its innocuous bricolage of the past. Thus, although AI music may nominally use the same technologies to remix its source material, it avoids replicating postmodern capitalism's superficial mashup of music's cultural timeline by reordering it along a much more immanently critical axis.

SONIC HAUNTOLOGY

AI music's mordant fidelity to the past makes it a fitting successor to a short-lived musical movement from the mid-2000s called *sonic hauntology*. Initially incubated by lively online conversations between leftist academics, journalists, and avant-garde music aficionados, sonic hauntology was a micro-genre of eccentric bedroom producers, outré experimentalists, sound collagists, and left-field club DJs. Artists such as Burial, The Caretaker, The Advisory Circle, and Moon Wiring Club composed what Mark Fisher, the late critic and most prominent theorist of sonic hauntology, fittingly called a "hauntological zeitgeist."[6]

As Fisher and others argued, the disturbing resonances elicited by sonic hauntology's plundering of the recorded past provided a stark contrast to postmodernism's obfuscation of history's political thickness. Music was made strange and uncanny by sonic hauntology's techniques of stitching, superimposing, and redirecting discordant trajectories from music's cultural timeline—putting different eras of recorded history back together in ways that destabilized their legibility. While techniques of mashing up and remixing could hardly be said to originate from sonic hauntology, its artists nonetheless used sampling technology to sample the past in ways that were more critical and transgressive than their contemporaries.

Sonic hauntology's critical rejoinder to the superficial eclecticism that dominated the 2000s airwaves, I argue, is most acutely reflected today in AI-generated music. Thus, I intend to demonstrate how AI music inherits sonic hauntology's trenchant critique of

postmodernity while advancing its critical aesthetic project in new ways. By foregrounding the temporal ruptures and logical discontinuities that postmodernism merely glosses over, AI music provides an alternative to late capitalist culture's shallow remixes of the sonic past. Most importantly, AI music executes its critique not by thematizing or symbolizing history's temporal disjunctures, but by *enacting* them *directly* through its medium's very technical operations. In other words, AI music's *uneasy listening* experience is effectuated at the algorithmic level. It originates from the substrates of its computational processes and the temporal fluxes they initiate.

The encounter between advanced technology and the archival past elicits what Mark Fisher referred to as a "technological uncanny."[7] While Fisher never fully explained its meaning, I argue that his otherwise brief reference to the technological uncanny makes up the core of sonic hauntology's efficacy as an unnerving and unstable sonic form. Moreover, it is AI-generated music that bears the greatest potential to reinitiate the spectral energies of sonic hauntology and its technological uncanny once again. Using deep learning algorithms, neural nets, and other computational methods to appropriate the sonic archive, AI music resituates sonic hauntology's technological uncanny within a contemporary context that is dominated by public anxiety over AI's increasing power and ubiquity. From its impending takeover of the service industry to its total surveillance of the global population, today's political and cultural environment is inundated with stories of artificial intelligence and its ruthless exploitation of labor, social discourse, and even consciousness itself. The data industries are more than happy to oblige the public's perception of AI's omnipotence, further inculcating digital capitalism's techno-ideological supremacy. But I argue that its application to music production provides an opportunity to momentarily loosen the grip it otherwise exercises over the body politic and its collective imagination.[8] As I will demonstrate, AI music's uneasy listening carries the capacity to estrange its listeners from artificial intelligence's exclusive articulation to capital accumulation, and opens a doorway to imagine it for alternative uses in an alternative world.

NEW ADVENTURES IN AI

In September of 2016, Sony Music's research and development division unveiled its latest attempt to create AI-assisted music compositions. Commissioning the tech company Flow Machines, Sony embarked on a mission to create brand-new songs that mimicked the styles of its artists' back catalogues. Their first AI production, "Daddy's Car,"[9] composed in the style of classic Beatles-esque pop. was surprisingly convincing—even disarmingly catchy. On their website, the song's creators explain how their compositions impersonate real artists by "turning music style into a computational object."[10] As they elaborate, "[m]usical style can come from individual composers, for example Bach or the Beatles, or a set of different artists, or, of course, the style of the musician who is using the system."[11] In other words, Flow Machines uses AI to translate the supposed uniqueness of human expression into a predictive algorithm. Importantly, its resulting output is not intended to recreate a group's style wholesale, but to mimic their stylistic signature to create new compositions that sound *like* them. The song "Daddy's Car," for instance,

doesn't reproduce the actual sound of the Beatles. Thus, the AI program does not delve into the sonic archives to granularly recreate the period-specific sound of the Beatles. "Daddy's Car" doesn't attempt to simulate the sound of George Harrison's jangly guitar riffs or John Lennon's bluesy vocal style. It doesn't recreate the engineering techniques of producer George Martin or utilize the vintage amplifiers one may have found at Abbey Road Studios circa 1965. Its recording quality and instrumentation sound decidedly like middle-of-the-road contemporary pop-rock. This is because rather than creating a perfect copy of classic Beatles music, the purpose of Flow Machines is to collect meta-information about the Beatles' songwriting style and run it through its algorithmic machines. The end result is less a singular object than a generic template for future music products that Sony undoubtedly intends to sell to the Beatles' fanbase.[12]

Unlike Sony's attempt to harness AI to remonetize its back catalogue, the technology has also been picked up by the underground music scene for more creative endeavors. For instance, the music-programming duo Dadabots produced their album *Coditany of Timeness*[13] by training their custom-designed neural network with the album *Diotima*[14] from New York metal band Krallice. The result was an entirely new set of artificially generated songs that drastically reformulated Krallice's brand of brooding black metal. Unlike Flow Machines, Dadabots use their AI program to materially alter previously recorded media (i.e., vinyl, tape, or even wav files) and transform them into entirely new compositions. In this way, against Sony's more vulgar opportunism, Dadabots' integration of AI faithfully follows the path of underground electronic music's countercultural tradition of reappropriating source material (with or without the creator's consent) by remixing or mashing it up. But despite their differences, critical reactions to both have been remarkably similar.

In fact, attitudes toward AI music have been consistent dating all the way back to its very earliest incarnations. For instance, UC Santa Cruz professor David Cope's pioneering experiments in AI were so convincing that his productions both alarmed and enraged his university colleagues and the classical music community at large. He began developing his own automated music program named Emmy all the way back in the early 1980s. As a precursor to Sony's experiments in AI music, Emmy's debut release, *Bach By Design,*[15] was unanimously condemned by colleagues who were aghast at his blasphemous usage of AI to score new classical compositions. Offering a recent retrospective of Cope's work, columnist Tim Adams notes how when listening to Cope's Emmy program, "you are discomfited and surprised in equal measure . . . Cope's work is far more than copying, it carries the recognisable DNA of the original style and fashions it into something recognisable but entirely new."[16]

Similar senses of eerie familiarity have been expressed by listeners of Flow Machines' algorithmic compositions and Dadabots' AI mashups. For instance, a reviewer of Dadabots noted how "[t]his isn't the first time someone's programmed a machine to create new music. But this time is different. Because it's actually quite good. And that's pretty spooky."[17] With regards to the Beatles-inspired AI song "Daddy's Car," journalist James Vincent gave a tongue-in-cheek close reading of its machine-generated lyrics, which straddle the line between profundity and gibberish. Interpreting the line, "*Down on the ground,*

the rainbow led me to the sun" Vincent sarcastically opines, "we realize the colorful rainbow road of AI leads us, just like Icarus, straight to the Sun, and our own destruction."[18]

This brief overview suggests that responses to AI music are mostly a mix of bemusement, fascination, even abjection. At first glance, such reactions are arguably consistent with the long history of public hysteria over new technological forms, or what Robert Hughes referred to as modernity's "shock of the new."[19] While listeners are indeed shocked by the revelation that what they first assumed to be old-fashioned human-made music was actually being made by nonhuman machines, the disconsolation provoked by AI music is not due to its radical break with the past, but rather, to its disquieting reanimation of it. In other words, it is AI music's uncanny appropriation of the past rather than its spectacular disclosure of the radically new that accounts for the underlying fear expressed by its listeners. Unlike the apocryphal tales of audiences panicking at an oncoming train at the Lumiere brothers' first film screenings, or listeners becoming convinced of an imminent alien invasion during Orson Welles's infamous radio broadcast of *War of the Worlds,* AI music does not induce public panic so much as fatalistic dread of AI's ascendancy.

AI MUSIC AND THE TECHNOLOGICAL UNCANNY

But before going too far down the narrative path of humanity's fateful encounter with its machinic usurpers, I contend that AI music's uneasy listening experience goes beyond oft-repeated tales of technology's imminent replacement of humankind. Reactions to AI music are better understood by closely studying the more molecular disturbances its technical operations pose to music's assumed structural integrity and temporal coherence. Like all hauntological objects, AI music is uncanny not only for what it *represents*, but for how it *works* at the level of its technical form. AI music doesn't merely symbolize society's anxieties over artificial intelligence, *it actively brings them into being* via the temporal disjunctures produced by its very technical operations.

It does so by materially constructing what Mark Fisher obliquely referred to as a "technological uncanny."[20] Although he never fully elaborated its precise meaning, the idea of the technological uncanny suggests that sonic hauntology's eeriness stems from how it uses new technology to remediate older sonic artifacts in ways that deliberately upset how the past is usually represented. For instance, foundational works of sonic hauntology like Burial's *Untrue*[21] and the Focus Group's *We Are All Pan's People*[22] used computer recording software to recapture content from other mediums such as reel-to-reel tapes and video game soundtracks. The source material was then truncated, transposed, and stretched by software known as digital audio workstations (DAWs) to create eerie new atmospheres and unsettling frequencies.

While techniques of sampling and remixing were invented long before sonic hauntology (famously pioneered by musique concrète artists in the early 20th century and further developed by dub and hip-hop producers in the late 20th century), what made sonic hauntology unique was its deliberate exposure of the recorded past's technological foundations. Whereas the official function of recording technology was to store and preserve

the integrity and legibility of its original content (for instance, compact discs were initially marketed to guarantee "perfect sound forever"), sonic hauntologists used recording instruments to foreground the sonic past's irruptions and discontinuities.[23] In this way, sonic hauntologists brought the past back to life to interrogate rather than hide the sonic archive's gaps and disjointedness. As Fisher writes: "Dyschronia is not repressed in hauntology; it rises to the surface. Or rather, it unsettles the very distinction between surface and depth, between background and foreground. In sonic hauntology, we *hear* that time is out of joint. The joins are audible—in the crackles, the hiss . . . "[24] In other words, sonic hauntology *made concretely audible* the temporal disunity and material artifice (the hiss, the crackle) that troubled common-sense assumptions of media's smooth and effortless recapitulation of the past. Such faith in recordings' veridical capacities originate from what the original philosopher of hauntology, Jacques Derrida,[25] famously referred to as Western civilization's illusory investment in a "metaphysics of presence."[26] Following Derrida's formulation, sonic hauntology complicated this received wisdom by sonifying the archive's paradoxes and contradictions. It brought recorded media's skips and glitches to the surface to defy the metaphysics of presence's false semblance of absolute clarity and transparency.

AI music follows sonic hauntology's practice of plundering the archives of recorded media and resituating them within a drastically different context.[27] AI artists like Dadabots mysteriously capture the essence of an obsolete medium and reprocess it through the most contemporary means. Radically remaking the original source material, Dadabots' AI program smudges, mangles, and smears Krallice's pounding drums and chugging guitar riffs into a churning sea of noise, static, and occasionally melodious shards of digitally compressed sound. As a listener to Dadabots' *Coditany of Timeness* (CoT) puts it, "[t]he strangest thing about CoT is that it reminds me of a raw live album, the sound could be from VHS footage captured next to a mosh pit at CBGBs in the 80s."[28] This observation astutely captures the concept of the technological uncanny as an interpenetration of disparate historical media that defamiliarizes listeners from predictable representations of historical time. The impression of CoT's grainy and muffled sound as an anachronistic VHS recording makes it sound like a spectral remainder of a former presence, but one that is paradoxically produced by the most cutting-edge technology today. Listening to CoT, the listener is confronted with a techno-historical paradox—how can something made by something so new sound so uncannily old and (un)comfortably familiar? Out of this contradiction is where the technological uncanny emanates.

Though there is nothing to suggest that Dadabots' creators deliberately generate such contradictions, their practice nonetheless inherits the aesthetic ethos of older sonic hauntologists. Like all of hauntology's sonic practitioners, Dadabots remediate the recorded past by new technological affordances. Dadabots' programmers even describe their neural synthesis framework in strikingly hauntological terms. As they explain:

> While we set out to achieve a realistic recreation of the original data, we were delighted by the aesthetic merit of its imperfections. Solo vocalists become a lush choir of ghostly

voices, rock bands become crunchy cubist-jazz, and cross-breeds of multiple recordings become a surrealist chimera of sound. Pioneering artists can exploit this, just as they exploit vintage sound production (tube warmth, tape-hiss, vinyl distortion, etc.).[29]

Seized by the present and transformed into a new synthetic combination, Dadabots scramble and reassemble their source material's temporal coordinates. As they describe, the iconic genres of rock and jazz persist, but now only as traces of their former unity and structural coherence. Sweeping up bits and fragments from their archives and feeding them into complex computing machines, their histories are scrambled and reassembled into wholly new composite forms. No longer guaranteeing legibility and reproducibility, their assumed integrity disappears, leaving only traces of their former coherence in the fleeting moments of recognition for the original source material, now scattered across the newly composed sonic artifact.

The strange world of Dadabots and other AI music experimentalists contains untold potential for messing with sonic media's temporal coordinates in ways that inherit the aesthetic ethos of past sonic hauntologists. Dadabots reinitiate the hauntological zeitgeist by summoning the depths of the digital archive and its reuptake by neural networks. Like their hauntological precursors, Dadabots explore their chosen sonic archive with cutting-edge tools, wielding instruments of artificial intelligence to mutate their source material into bizarre recombinations. Their radical annexation of the musical past subsequently creates a weird and unsettling listening experience in the present.

HAUNTOLOGY *PAR EXCELLENCE*

But it is not just the underground and avant-garde music communities that tap into AI music's hauntological tendencies. Unlike the experimentalists and eccentric outsiders who defined sonic hauntology in the 2000s, the current vanguard of hauntological production is taking place in the innermost citadels of the culture industry. For instance, when comparing industry-led experiments in AI to its underground counterparts, the Sony-funded "Daddy's Car" is arguably a far more discomfiting listen than any of Dadabots' productions. While not the explicit intent of Sony or its subsidiary Flow Machines, in their profit-driven attempt to approximate human-made music as closely as possible, "Daddy's Car" unintentionally reveals the contradictions enacted by hauntology's tech-nological uncanny. By algorithmically imitating historical style to create new simulacral productions, Sony's appropriation of the past produces an even greater dramatic encoun-ter between the assumed consistency of historical time and its nearly indiscernible re-simulation by computational machines.

On a compositional level, the song's spritely melodies, charming vocals, and steady backbeat put a new varnish on the Beatles' classic style of midtempo rock 'n' roll. But experientially, the song carries dark and disturbing undertones rather than toe-tapping amusement. Unlike the actual Beatles, whose songs are forever immortalized in the pop culture canon, the origin of "Daddy's Car" is fundamentally synthetic and inorganic. It does not emerge from the collective alchemy of an iconic band, but from massive caches of data processed by automated algorithms and complex neural networks. Through the

dense technicity of its computational operations, the song produces a sense of remoteness and otherness in the listener. Instead of emerging from a spark of human inspiration, it flows in from some mysterious elsewhere. The listener is left uncertain where its creation originates. Does it simply come from the moment of its algorithmic output? Or is it anterior to the actual object at hand, hiding enigmatically within the source material processed by the AI program? And what about the archival past it draws from to create its compositions—isn't this the "true" source of its content? The schisms produced by its non-authorial origins and temporal inconsistencies are subsequently experienced by the listener at the level of its sonic output—*materially sonifying the paradox of its own creation.*[30]

Replicating one of the most cherished artists from music history, "Daddy's Car" solicits a sense of closeness and intimacy, but one that is too close for comfort. Its disconcerting familiarity rises up from the netherworld of the technological uncanny. Billowing to the surface, the listener encounters the technological uncanny's alien otherness and horrifyingly accurate rendering of one of pop culture's most celebrated icons. Hearing the eerie approximation of the Beatles being reproduced by automated algorithmic processes, the smooth membrane that otherwise shields pop music from its subterranean spectral energies is punctured. Listeners are confronted with pop music's inhuman other, an algorithmic ghost in the machine that troubles their faith in music's supposedly human essence.

In this way, "Daddy's Car" unwittingly reveals its capacities to scramble music history's spatio-temporal coordinates and plunge common-sense narratives of pop music's authorial authenticity and human uniqueness into crisis. Disclosing its logical contradictions in the very same stroke it attempts to gloss them over, "Daddy's Car" momentarily refers back to its own temporal and creational inconsistencies—threatening to undermine its investment in recapitulating and remonetizing pop music's official archive. For this reason, although its artistic intent is largely incompatible with hauntology's deconstructive project, in other ways "Daddy's Car" is an object of sonic hauntology par excellence.

While the investors behind "Daddy's Car" will likely disregard the elisions, aporias, and irregularities operating below the song's surface, they do so at their own peril. Neglecting the spectral residues produced by the technological uncanny hardly dissipates its energies, but incubates them to higher degrees of intensity. The broader political implications of releasing these spectral forces compose the basis of the following section and my investigation's conclusions.

FULL SPECTRAL DOMINANCE

Before teasing out the political potentials that emerge from AI music's haunting disturbances, a more fundamental question must be broached—why should we assume sonic hauntology bears any political efficacy to begin with? Perhaps this question is best approached by tracing the political trajectory of sonic hauntology's original emergence in the early 2000s. I argue that the geographical, social, and cultural milieu of sonic hauntology's founding theorists and practitioners provides the best framework by which

to understand sonic hauntology's political orientation, and therefore its critical potentials as well. In short, sonic hauntology's political efficacy is inextricably linked to its historical context—a fact that likewise must be considered if we are to resituate sonic hauntology into today's current conjuncture.

Composed largely of British intellectuals and art-school musicians who came of age in the heady days of early UK rave music, sonic hauntology solicited a bittersweet nostalgia for a time before Margaret Thatcher's neoliberal project of mass privatization and ruthless austerity. Sonic hauntologists crafted their spooky aural landscapes by sampling marginalia from the pre-Thatcher era of social democracy, such as radio broadcasts and public safety videos.[31] These pre-neoliberal revenants formed the archival foundations of hauntology's sonic vocabulary, communicating to its listeners a melancholic homage to a time before neoliberalism's iron grip on society. Inspired by dub and hip-hop producers' pioneering innovations in sampling and remixing, producers used these techniques to sonically summon the remnants of British culture snuffed out by Thatcher's counterrevolution. Displaced from their historical home, the unbridled excitement and psychedelic sonic energy of past musical movements—such as the BBC's adventurous Radiophonic Workshop and the UK's bustling rave scene of the 1990s—were unsettlingly juxtaposed against the bland pastiche and retro revivalism that dominated the cultural climate. Mourning the once-revolutionary potentials of the past, the hauntological zeitgeist hailed by Fisher and others served as a somber indictment of neoliberalism's suffocation of future imaginaries.[32]

Sonic hauntology's appeal to its target audience ultimately waned as the 2000s drew to a close. Yet despite a loss of interest, I argue that sonic hauntology's political purchase has retained its potential. After all, its condemnation of capitalism's ironclad consensus as the only game in town has hardly receded. With the arrival of AI music, I argue that sonic hauntology merits another reconsideration. While largely disregarded by sonic hauntology's critics and practitioners, AI music's novel deployment of technology to the sonic archives of the past harbors the potential to revivify sonic hauntology as a critical aesthetic practice. Moreover, its imbrication within the broader discourses concerning artificial intelligence's supposed superiority over human labor and human intellect pushes it beyond simply being a revival or homage to sonic hauntology.

Whereas sonic hauntology's first iteration may have been limited by its historical specificity to Thatcherite neoliberalism, AI music's imbrication within the global spread of artificial intelligence technologies carries the potential to renew the political relevance of sonic hauntology on a vastly larger scale. The significant ideological and financial investment in AI by the dominant social order opens the doorway for AI music to be a radically immanent critique of its own social and historical embeddedness within late capitalism's current conjuncture. Thus, if the political efficacy of sonic hauntology's first iteration stemmed from its immanent critique of the neoliberal turn, today's AI music likewise gains its political purchase as an immanent critique of today's hyper-digitalized capitalism—typified by corporate behemoths such as Amazon and Google that praise AI as a marvel of productivity enhancement and economic efficiency.[33] The ideological presumptions and technocratic fantasies driving AI's evangelization by the ruling elite

should hardly come as a surprise—nor should the darker reality of its actual application. In the world's peripheries, AI's glossy marketing campaigns give way to brutish displays of force. Its suite of predictive algorithms, surveillance drones, and high frequency trading (HFT) software become concrete threats to survival instead of instruments of salvation. Outside the ruling class's fortified sanctuaries, AI is bluntly wielded to underwrite late capitalism's declaration of full-spectrum dominance. For the global poor, AI's techno-cratic mastery does not convey social progress, but a coercive threat—that the rulers and their superior machines will dispossess them from the global economy if they refuse to submit to capitalism's neoliberal orthodoxy.

But inside this grave scenario resides the possibility of its subversion. Since artificial intelligence is intimately entangled within the highly ideologized discourse of high-tech capitalism, its admittance into the tumult of the global culture industry makes AI music uniquely suited for political intervention. As sonic hauntology has already shown, when the marvels of digital media are applied to pop music, disturbances to temporal experience and authorial integrity open opportunities to momentarily crack the foundations of popular culture from within. Likewise, the uncanny effects elicited by AI music have the potential to undermine artificial intelligence's monopolization by the data industries and their suffocation of alternative imaginaries.

By repurposing the most cutting-edge technologies that are essential to the ruling order's assertions of its own historical necessity, AI music carries the capacity to under-mine capitalism's swaggering confidence in its own techno-ideological supremacy. While AI music doesn't succeed in prescribing alternative futures and saving mass culture from its creative deadlock, as no such imaginary currently exists, its power lies in the potential to solicit the intolerable nature of this condition from the listener. In other words, AI music sonifies the predicament of late capitalism's dissolution of future alternatives. In doing so, it inherits sonic hauntology's project of troubling capitalism's claim to world-historical omnipotence.

It is in fact the intolerable nature of AI music so often invoked by listeners who reject its unnatural origins that, I argue, contains the kernel of possibility to redirect its negative charge away from the algorithms that produce it, and toward the cultural condition that impoverishes society's ability to imagine it as a tool of collective emancipation. It invites us to imagine a world where AI is not deployed to further capitalism's hegemony, but to release us from its drudgery and create an emancipative world of collective prosperity. The abjection so many listeners feel toward AI music, like the accounts from those profiled earlier, belies a deeper disturbance over the helpless feeling of inevitability that capital's technocratic mastery of the once-ineffable domain of human creativity implies. AI music disturbs listeners less so because of the implication of robots soon replacing us than because of the feeling of fatalistic inevitability that drives this conclusion—that there is no future other than the forward march of capital automating us out of existence.

But capitalism constricts the future not only by snuffing out alternative prescriptions. Its project is to cut off imaginative thinking from all sides, both prospectively and retrospectively, sealing up any recourse of escape. In other words, capitalism monopolizes not only visions of the future but also interpretations of the past. While this may simply

recall the centuries-long tradition of rulers deploying revisionist history to stamp out more subversive legacies, the truly innovative move of late capitalism is to control its historical narrative not by prohibiting access to its archive but by freely offering it to us in its excessive plenitude. Blinded by the overwhelming *presence* of its radiant array of information, the bottomless wormhole of YouTube clips, clickbait, and the incessant feed of social media, the past is no longer graced with the possibility of erasure, and consequently, a doorway to the creation of new futures. History becomes trapped in the liminal space between belonging to the chronically unforgettable past and digital capitalism's foreclosure of different futures. The political thickness of the past becomes diluted by the oppressive overabundance of the media stream.

But the suppression of history's more subversive legacies does not eradicate their political efficacy once and for all. Rather, it pushes them onto an even more unstable and subterranean register.[34] Ultimately, capitalism's dream of de-corporealizing itself through the magic of financial instruments, cloud computing, and artificial intelligence simultaneously admits a new level of uncanniness into its techno-economic matrix. The radiance of knowledge it shines down from its celestial cloud simultaneously casts a shadow—a specter that looms over and undermines the supposedly veridical transparency of its official archive.

It is this intrinsic contradiction that "Daddy's Car" unexpectedly captures so vividly. It foregrounds both digital media's technocratic mastery of space-time and the spectral or haunting feeling such self-assured certainty betrays. "Daddy's Car" shows how the more AI perfects both the data industries and the culture industries—thus intensifying capital's hegemony all the more drastically—the more it also admits uncanny and destabilizing energies into its remit. The more it seeks to subsume everything into its orbit, the more it unwittingly allows in the "dangerous supplements" as well, which, as Derrida reminds us, have the capacity to overtake what they were supposed to serve.[35] Full spectrum dominance lapses into full *spectral* dominance.

CONCLUSION

Hauntology's gift lies in its steadfast opposition to postmodernity's carefree abandonment of historicity's political depth. Though one could hardly qualify such opposition as militant, its mourning for the lost potentials of the pre-neoliberal past nonetheless resists late capitalism's triumphal declaration of victory—the end of history. Hauntology is postmodernism's "zombie twin" refusing to go along with it "*glossing over* the temporal disjunctures" of the past."[36] Thus, unlike postmodernism's analgesic resuscitation of history, hauntology works against its appropriation as a spectacle of retro pastiche. It disallows capitalism's omission of humanity's tumultuous past—the violence and struggle that underlies each era. It upsets official history's temporal coordinates by bringing its elisions to the fore, resisting capitalism's codification of history into an assortment of flavors that elicit some vague taste of *pastness*. While perhaps an overly bitter pill for some, hauntology's bizarre palette of sensations nonetheless harbors the potential to estrange listeners from the dominant culture's parade of superficial revivalism they are forced to swallow.

As I have argued, it is AI-generated music that most provocatively beckons hauntology's spectral sensations today. Its explosive potential to rescramble the coordinates of the musical past in radically new ways places sonic hauntology at the precipice of another creative revitalization. Just as sonic hauntology's emergence last decade was precipitated by new channels of communication and recording technology, with AI it has in its grasp an entirely new set of tools to reenter the sonic archives once again.[37] But the affordances that AI presents to sonic hauntology are not intended to suggest a linear narrative of its formal progress. In other words, hauntology does not get *more* refined as its tools of production advance.[38] There is no asymptotic point of hauntological singularity that awaits us. Hauntology cannot solve the crisis of futurity, let alone offer concrete examples of radical alternatives. It simply presents to its listeners the problematic of the crisis itself, bringing its impasses to the foreground in order to defy the overarching edicts enforced by the ruling consensus. It audibly foregrounds the asynchronies and discontinuities that capitalism's foreclosure of alternatives attempts to hastily conceal. It does so by sonically constructing a technological uncanny that destabilizes capitalism's self-serving narratives of its algorithmically executed supremacy. As we hear in the spooky residues of AI-generated music, its uncanniness reveals the tensions, contradictions, paradoxes, and irritability operating underneath digital capitalism's gleaming surfaces. Thus, AI-generated music has the potential to interrupt the culture industry's desire for the mundane perfection it articulates to the epistemology of the digital. Its uncanniness reminds us how this very epistemology remains up for grabs. It attunes us to frequencies that estrange and defamiliarize our acceptance of postmodern capital's nostalgia entertainment complex.

Despite the critical potentials for such uneasy listening, we can fully expect AI-generated music to continue being championed by the tech industry, harnessing its irresistible ability to mimic cherished archives of the past. Thus, in a kind of sobering corrective to Dadabot's optimistic vision of AI music's future, one should expect the data industries—no longer content with just storing history in their sprawling network of server farms—will soon demand authorization to resurrect and project infinite versions of our collective memories. In this dystopic vision, pop music history will have become immemorially contained and eternally resurrected with an infinite capacity to serve up new objects of consumption. Whether you want to hear a pseudo-original Beatles song like "Daddy's Car" or watch the morbid spectacle of deceased celebrities being paraded around as live holograms,[39] postmodernism's "permanent revival" is poised to take on unsettling new intonations.

The various AI ventures currently explored by major record labels suggest a concerted effort to find ways of creating new content by algorithmic means instead of relying on the costly labor of human songwriters and producers. Convincingly mimicking the style of their back catalogue's highest sellers would undoubtedly present an appealing way to increase their profit margins. If successful, it is plausible that AI will be fully incorporated by the entertainment industry for the express purpose of creating convincing simulacra of their best-selling products. These efforts suggest that the supposedly irreducible necessity of human labor in the creative industries is in fact hardly immune from technological automation and thus follows capital's drive to weaken the power of labor across the global economy.

Hence, it is in the very potentials of AI music to reengage listeners and inspire critical cultural practice that its vulnerabilities are simultaneously exposed. If the public is indeed hungry for uncanny incantations of the musical past, then the capacity for capitalism's nostalgia industry to appropriate or subsume any nascent critical energy offered by this demand back into its commodity matrix should not be underestimated. As history has shown, capitalism's ability to convert a challenge to its authority into a consumable object is one of its most cunning maneuvers. Capitalism's plans to further develop AI music suggest it too has potential for eventual mass commodification.[40]

Overall, AI music's radical capacities should be tempered by the reality of the existential crises facing cultural form today, and by society's attitude toward future imaginaries altogether. In this scenario, AI music doesn't necessarily promise a radical alternative to our present moment but hopefully a momentary sense of alterity from it. ▪

NOTES

1. Fredric Jameson, *Postmodernism, or, the Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991).

2. Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, vol. 10 (Minneapolis: University of Minnesota Press, 1984).

3. Colin McKean, "Is Pop Culture Consuming Itself? Simon Reynolds Discusses Retromania," *The Quietus*, June 8, 2011, http://thequietus.com/articles/06386-simon-reynolds-retromania-interview.

4. Artificial intelligence itself remains a hotly contested term, and much debate continues to this day on its merits as a concept and its applicability to emerging computational technologies. While these conversations are important, they are well outside the purview of this study. For more on the history of AI as both a science and a cultural concept, see Nils J. Nilsson, *The Quest for Artificial Intelligence* (Cambridge: Cambridge University Press, 2009).

5. While in thematic terms AI has long been an object of fascination for many musicians like Kraftwerk and Jeff Mills, it has nonetheless largely been allegorized or narrativized rather than used to produce music itself. In other words, while much music has been made *about* AI, less has actually been produced *by* AI.

6. Mark Fisher, "K-Punk: Phonograph Blues," October 19, 2006, http://k-punk. abstractdynamics.org/archives/008535.html.

7. Ibid.

8. As a key lever of power in today's global economy, AI is applied to economic activities that range from arbitrating labor contracts to calibrating recommendation algorithms and automating stock market trades. But AI not only assists capital in finding new avenues of accumulation (primitive or otherwise); its technological grandeur, assiduously promoted by the mainstream press, simultaneously engenders a sense of fatalism among the public as well. In other words, there is an overwhelming sense of inevitability that accompanies the rise of artificial intelligence, but one that is far removed from 20th-century apocalyptic visions of machines conquering humans. The mood surrounding AI today is far more mundane, yet no less insidious in its mundanity. Capital's monopolization of artificial intelligence and its increasing imposition into our everyday lives subsequently restricts the popular imagination's capacity to envision it for alternative uses. In this way, AI satisfies neoliberal capitalism's primary edict: that there is no alternative.

9. Benoît Carré, Sony CSL, "Daddy's Car," September 19, 2016, https://www.youtube.com/watch?v=LSHZ_b05W70

10. "Flow Machines: AI Assisted Music," n.d., http://www.flow-machines.com.

11. Ibid.

12. As I will show, it is precisely its genericity that makes AI music more radical than previous marriages of music and cutting-edge technology. Its fundamental fungibility transforms the supposedly unique specificity of an artist's style into an informational commodity that can subsequently be mined for new cultural products in perpetuity.

13. CJ Carr and Zach Zukowski, *Coditany of Timeness,* Dadabots, 2017 (MP3).

14. Krallice, *Diotoma,* Profound Lore Records PFL 076, 2011 (CD).

15. David Cope, *Bach by Design,* Centaur Records CRC 2184, 1994 (CD).

16. Tim Adams, "You Pushed the Button and Out Came Hundreds and Thousands of Sonatas," *The Guardian*, July 11, 2010, https://www.theguardian.com/technology/2010/jul/11/david-cope-computer-composer.

17. Tristan Greene, "This Heavy Metal Music Made by a Machine Will Rock Your Human Face Off," *The Next Web*, December 2, 2017, https://thenextweb.com/artificial-intelligence/2017/12/02/this-heavy-metal-music-made-by-a-machine-will-rock-your-human-face-off/.

18. James Vincent, "This AI-Written Pop Song Is Almost Certainly a Dire Warning for Humanity," *The Verge*, September 26, 2016, https://www.theverge.com/2016/9/26/13055938/ai-pop-song-daddys-car-sony.

19. Robert Hughes, *The Shock of the New* (New York: Knopf, 1981).

20. Mark Fisher, "K-Punk: Phonograph Blues," October 19, 2006, http://k-punk.abstractdynamics.org/archives/008535.html.

21. Burial, *Untrue,* Hyperdub HDBC 002, 2005 (CD).

22. The Focus Group, *We Are All Pan's People*, Ghost Box GBX 008, 2007 (CD).

23. Even the more inventive uses of recording technology (notably heard in the top 40s widespread use of Auto-Tune) largely aim to seamlessly blend the source material and present a smooth and easily consumable product (with notable exceptions, such as the rap artist Future). Sonic hauntology deliberately subverts this process. What would otherwise be considered blemishes or imperfections become sonic hauntology's main musical vocabulary.

24. Mark Fisher, "The Metaphysics of Crackle: Afrofuturism and Hauntology," *Dancecult: Journal of Electronic Dance Music Culture* 5, no. 2 (October 24, 2013): 42–55, 48.

25. As its name suggests, *hauntology* is a pun on *ontology*, i.e., the philosophical study of being at its barest and most irreducible level of existence. The addition of *haunt* to *ontology* suggests that ontology's claim to absolute existence is immediately undermined by the attendant anxieties and disturbances such self-positing unavoidably instantiates. The very essence or primordial nature of being is undermined by a fatal contradiction—that its originary moment can only ever be verified after the fact. Derrida argues that the irresolvable aporia at the heart of being stalks the entire history of Western metaphysics, operating below the surface to disturb and unsettle any claim of its ontological self-certitude. As the neologism of hauntology suggests, there is always a spectral remainder or irreducible absence at the very center of being's supposedly self-evidentiary certainty.

26. Jacques Derrida, *Specters of Marx: The State of the Debt, the Work of Mourning and the New International* (London and New York: Routledge, 2012).

27. Along with its connection to hauntology, AI music also extends what is a long tradition of sound's deep connection to the spectral. Sonic media arguably shares more similarities with the figure of the revenant than most aesthetic objects. It occupies a certain quasi-materiality, a texture without shape, a presence alongside a non-presence, and a stubborn inability to be made visible. Moreover, the introduction of the ghost in literary and filmic narrative is often sounded before it is (un)seen. Derrida himself used an auditory figure (the voice of Hamlet's father's ghost) as the archetypal expression of hauntology's paradoxical temporality.

28. Tristan Greene, "This Heavy Metal Music Made by a Machine Will Rock Your Human Face Off," *The Next Web*, December 2, 2017, https://thenextweb.com/artificial-intelligence/2017/12/02/this-heavy-metal-music-made-by-a-machine-will-rock-your-human-face-off/.

29. Zack Zukowski and CJ Carr, "Generating Black Metal and Math Rock: Beyond Bach, Beethoven, and Beatles," https://nips2017creativity.github.io/doc/Generating_Black_Metal.pdf (n.d.), p. 3.

30. Of course it is unclear whether the song would elicit the same reactions if the listener didn't know the song was made by machines ahead of time. Ironically, if it successfully passed this quasi-Turing test it likely wouldn't elicit any uncanny affects at all. This underlies an important point: sonic hauntology doesn't exist in some mysterious or mystical substance within the technology. It is produced through our encounter with it. It is socially (or more specifically, historically) mediated as much as it is technically mediated. In fact, it is precisely the mix of the historical and the technical that defines the technological uncanny as such. Thus, whether "Daddy's Car" passes or fails its Turing test is beside the point. What matters is the cultural and historical context with which the listener encounters the song, not its "essential" uncanniness or hauntedness.

31. This technique of sampling old public information films is used to great effect in The Advisory Circle's hauntological classic, *Other Channels,* GBX 010, 2008 (CD).

32. As a text, hauntology's conceptual origin was itself premised as a political intervention. As its title suggests, Derrida's *Specters of Marx* served not simply as a grand revelation of the ontological contradictions haunting the metaphysics of presence but also as a way to trouble the triumphal attitude of what was then a newly hegemonic global capitalism. Commencing his lectures shortly after the Soviet Union dissolved, Derrida framed his study as a retrospective of communism as a philosophical idea and a political force, which now served to posthumously haunt and unsettle capitalism's claim to unrivaled dominance. Although state communism no longer occupied the world stage, Derrida suggested that capitalism's victorious celebration over its vanquished rival betrayed a deeper anxiety of its former foe. Capitalism's worry stemmed from the fact that instead of being consigned to an impossible state of absolute nonexistence, communism now haunted capitalism by virtue of its very absence. In other words, like all historical legacies, communism's power could never be finally and forever expunged. Rather, its defeat left an indelible mark on its victor, forever haunting capitalism's desire to inaugurate itself as what neoconservative philosopher Francis Fukayama famously proclaimed the End of History.

33. Even in the progressive political sphere, AI is hailed as a beacon of social progress and human liberation. World leaders and policy experts celebrate it as a miraculous panacea to the problems plaguing global populations. Issues such as poverty, access to education, financial instability, and climate uncertainty are all promised to be reduced, if not eradicated, by AI's superior ability to administer the global economy.

34. The archive, as Foucault reminds us, is an exemplary tool of authorial power. Through its verification and monopolization by the state, the limits are firmly set for what is seeable and sayable in any given society. With the "archive fever" spurred on by the revolution in digital media storage, never has its power been more enticing to capital, and yet also more unwieldly and vulnerable. It is precisely in this interstice that hauntological media levels its critical assault. By undermining and destabilizing what capital has invested in as both its future and its total authority over the present hauntology reminds us that digital capitalism's total colonization of time and space is never guaranteed in full. Michel Foucault, *The Archaeology of Knowledge*, trans. A. M. Sheridan Smith (New York: Pantheon, 1972).

35. Jacques Derrida, *Of Grammatology*, trans. Gayatri Chakravorty Spivak (Baltimore: Johns Hopkins University Press, 1976).

36. Mark Fisher, "The Metaphysics of Crackle: Afrofuturism and Hauntology," *Dancecult: Journal of Electronic Dance Music Culture* 5, no. 2 (October 24, 2013): 46.

37. The relation of hauntology to technical mediation did not escape Derrida's original philosophical conception, either. While he did not comprehensively address hauntology's relation to new

media technologies in *Specters of Marx*, Derrida did situate hauntology's emergence within the context of the epochal rise of what he described as "the new speed of apparition . . . of the simulacrum, the synthetic or prosthetic image, and the virtual event, cyberspace and surveillance, the control, appropriations, and speculations that today deploy unheard-of powers" (p. 67). With the rise of AI, the unheard-of-powers suggested by Derrida are quaint in comparison. But as I have shown, AI also provides new opportunities to exploit the technological uncanniness produced by new media and its remediation of the past

38. While the technical specificity of the tools at hand are important, they are less critical to hauntology's efficacy than the more general logic of mediation itself. As historian Jeffrey Sconce outlines, the emergence of electronic media follows a long lineage of humanity's desire to open up new channels of communication with the paranormal. Thus, while new media might coincide with new forms of hauntological expression (or apparition), most critical is the process of mediation as such. That caveat aside, technical innovations do indeed allow new affordances for interfacing with the spectral. For instance, Sconce outlines how the arrival of radio, telegraphy, and television corresponded with new genres of spectral phenomena, from telegraphic mediumship to radiophonic sorcery (the ghost in the machine, as it were). Jeffrey Sconce, *Haunted Media: Electronic Presence from Telegraphy to Television* (Durham, NC: Duke University Press, 2000).

39. Paul Donoughue, "Dead Musicians Are Touring Again, as Holograms—It's Tricky, Technologically and Legally," ABC Australia, December 28, 2018, https://www.abc.net.au/news/2018-12-29/hologram-technology-letting-dead-musicians-tour-again/10600996.

40. Nor should the deracinated nature of current AI music be ignored. In both its creative and commercially inspired iterations, what is notably absent are any people of color and other minorities utilizing its technology. As marginal identities are foundational to pop music and new sonic forms, most especially movements from the African diaspora, their absence from current conversations around AI-generated music is troubling. This is not to say that AI music possesses some inherent barrier to entry for more socially marginalized classes. Perhaps one positive consequence of AI music's increasing commercialization will be growing potential for adoption by a broader swathe of artists who are denied the education of complex computer coding programming currently necessary to produce AI music. For more on the African diaspora and its sonic, visual, and cultural legacies, see Paul Gilroy, *The Black Atlantic: Modernity and Double Consciousness* (Cambridge, MA: Harvard University Press, 1993) and Kodwo Eshun, *More Brilliant Than the Sun* (London: Verso, 2018).