Querying the Ghost: AI Hauntography in NIME

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ABSTRACT

The discourse around creative AI is populated by eerie and otherwordly presences, often evoked by artists to reflect on the social and cultural challenges that this technology embodies. This tendency of AI art to bring forth the uncanny, also emerging in my design and performative work with NIMEs, echoes the methods of an artistic movement known as sonic hauntology. In this paper I elaborate on Derrida's and Fisher's notion of hauntology, a theoretical framework investigating ontology's liminalities, and an artistic current addressing the paradoxes of postmodernity through the magnification of the technological uncanny. I then apply this paradigm to creative AI, arguing that the model's algorithmic manipulation of the training data reproduces and exponentially accelerates the processes of temporal and semantic flattening that characterise postmodern aesthetics. The frictions produced by creative AI as it operates with and within the culture bring forth hauntological disjunctures, that artists might harness as an instrument of critique and scholars as a novel epistemic method. Finally, I introduce AI hauntography, a practice-based methodology combining artistic practice and observation to investigate the phenomenological aspects of creative AI as they intersect with the broader technical and sociopolitical discourse.

Author Keywords

Hauntology, AI Hauntography, Spectrality, Artificial Intelligence, Neural Audio Synthesis, Machine Learning, Instrument Design

CCS Concepts

•Computing methodologies → Philosophical/theoretical foundations of artificial intelligence; •Applied computing → Performing arts;

1. INTRODUCTION

The notion of explainable AI (XAI) acquires different nuances in its diverse fields of application. If among the machine learning (ML) community explanations usually refer to the reasons behind the model's outputs in classification and prediction tasks [6], beyond such domain XAI extends to "everything that makes ML models transparent and understandable" [24], encompassing both the technology and the broader context in which it is deployed [26, 29].

In the arts, according to Bryan-Kinns et al. XAI provides an "insightful counterpoint to more functional explanations of AI" [6]. Explanations encompass here the embodied understanding of a system as we navigate it, rather than the plain, causal accounts of its workings [1], its material affordances [33], glitches included [22], as integral to the work of art, and even concerns regarding AI's energy consumption and the ethics of data collection [21].

In line with this, Arora and Sarkar critique a narrow view of XAI in the arts by noticing that, since art is concerned with the sublime, explanations become ornamental to the artistic intention; this anthropocentric perspective of XAI should be replaced with the notion of sense-making, intended as a relational and immanent "system of echoes, of resumptions and resonances" [3].

These contributions add to a growing corpus of research, within and beyond the arts, which frames XAI past the mere understanding of the model's workings, whose algorithmic opaqueness, rather than the definitive problem to solve, may be viewed under certain conditions as a gate to a different episteme.

Indeed, as engineering research focuses on breaking the black box, artists are actively engaging with its fundamental (and perhaps irreducible) opacity, and building on the unexplainable, the ambiguous and the uncanny, playfully re-enact the paradoxes that constitute the technical and cultural phenomenon of creative AI.

This process is at work, for instance, in Dadabots's ceaseless real-time musical ruminations,[1] in Herndon's Godmother, merging oblique vocal reconstructions, eerie percussive sounds and close-ups of the artist's face as viewed by a machinic observer,[2] and, in the symbolic domain, in Carré's summoning of Irving Berlin's and Cole Porter's creepy doppelgängers.[3]

Similarly, in NIME design Hexorcismo's Semilla.ai (Figure 1) combines computer vision, neural audio synthesis, and the Meso-american practice of maize seeds divination; Donnarumma interacts instead with uncannily autonomous prostheses,[4] Shepardson's Living Looper reimagines the guitar looper into a living agent [36], and Gioti's online-learning system evokes fears of machinic substitution haunting a group of singers with their sonic remnants.[5]

A certain spectrality has emerged in practice as well. I

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[1] https://www.youtube.com/watch?v=8oVdPaJoE6c
[2] https://www.youtube.com/watch?v=sc9OjL6Mjqo
[3] https://www.youtube.com/watch?v=lcGYEXJqun8
[4] https://marcodonnarumma.com/
[5] https://www.artemigioti.com/works/TYTS.html

Figure 1: Hexorcismos' Semilla.ai.

began my research on XAI in design and artistic practice by composing systems [32] around the peculiar affordances of neural audio synthesis algorithms [8]. As I iteratively engaged with them, I became increasingly aware of the models' statistical rumination of the source material and interested in the processes that this activates in designers, artists and listeners.

I began building my NIMEs and artworks, at first inadvertently, upon the subtle sense of eeriness that this mechanism tends to bring about, querying the dataset's ghosts with interfaces based on hidden magnets [31, 33], incorporating drawings of ancient Icelandic spells [30], and overlapping creepy human voices with otherworldly, dreary sonic presences [28].

With these hauntings in mind, I began exploring the wider debate around AI, realising that the eeriness I noticed in my and other artists' works, within and beyond the IIL experimental ecosystem, parallels with the summoning in the political, technical and aesthetic discourse of ghosts of different kinds: some of these are metaphorical, lurking behind the disembodied authorship of AI co-creation [13], some bear the signs of the human labour that sustains the technology,[6] and others, ethereal and ubiquitous, haunt the web through the viral diffusion of improbable narratives.[7]

One might here extend Arthur C. Clarke's well-known quote, arguing that even though sufficiently advanced technologies may be indistinguishable from magic, they sooner or later stabilise within the culture turning into something less of a mystery and more of a tool. But even though the disruptive novelty of the technology, coupled with the tendency towards the otherworldly of modern media [7] undoubtedly contributes to the emergence of spectres of different kinds, another mechanism might be at play with generative AI, one that echoes the instances of a short-lived, inhomogeneous aesthetic movement formalised by Mark Fisher under the umbrella term *sonic hauntology* [14].

In this paper I elaborate on this insight, framing the discourse on hauntology from Derrida to Fisher, and exploring its application to creative musical AI and within my own work with NIMEs. This will help us delineate the practice-based methodology of *AI hauntography*, a research method based on a perspective on XAI as sense-making [3], combining musical performance, and observation to investigate the phenomenology of creative AI as it manifests in our instrument designs and the broader social context.

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[6]https://sirchutney.medium.com/artificial-intelligence-is-powered-by-ghosts-fe00979914cc
[7]https://en.wikipedia.org/wiki/Loab

2. HAUNTOLOGY

The notion of *hauntology* traces back to Derrida, as yet another pun in his deconstructive arsenal (in French, "hauntology" is indeed a homophone to "ontology") extending his exploration of the ontologically liminal to individual and collective existential history. Indeed, in his Spectres of Marx, Derrida introduces the idea of a broken historicity, or, by summoning Hamlet's ghost, of an "out-of-jointness" permeating the neo-liberal ideology [12].

In deeming Fukuyama's claim of history coming to an end with the crisis of the Soviet Union [17] as neo-evangelic rhetoric, and as such ideology in disguise, Derrida argues that Marxism was a spectre in the first place, a ghost haunting Europe since the incipit of the Communist Manifesto. It is within the paradoxes inherent to the repression of historical time programmed into the neo-capitalist cultural hegemony, in the "out-of-jointness" caused by the historical impossibility of neoliberalism's self-proclaimed universality, that Derrida's notion of hauntology finds its foundation.

This existential haunting is the fundamental condition of postmodernity, the cultural logic of neo-liberal society, characterised by a generalised scepticism towards the past, the disavowal of 20th century grand narratives, and a generalised sense of loss in the stability of meaning [25]. Postmodernism, argues Jameson, subverts and flattens time through a *nostalgia* mechanism, a pervasive phenomenon in the post-Fordist cultural production, ceaselessly enacting a stereotyped, fictional past through the recovery and juxtaposition of its voided simulacra [20].

This "nostalgia mode" is symptomatic of a cultural folding, a deceleration in the evolution of artistic creation all the more evident if compared to the exponential increase in the pace of technical innovation. Nostalgia's concurrent processes of re-actualisation and neurotic iteration of a fictional past offer the most pristine example of the kind of spectres hauntology is concerned with: the subtle eeriness, the uneasiness, the paradoxical disjunctures that this self-referential delusion brings about are viewed, through the hauntological lenses, as symptoms of a profound chasm, liminal traces confronting us with the impossibility of a future without a reconciliation with the ghosts haunting the present.

Žižek effectively epitomizes the hauntological process that comes into play with nostalgia, when, interpreting Marx and Freud, he writes that "the way to the truth of a system (of society, of the psyche) leads through what necessarily appears as a pathological, marginal and accidental distortion of this system, [such as] slips of the tongue, dreams, symptoms, economic crises" [37]: nostalgia's paradoxical pastiche, precisely when it aims for its own legitimisation, brings forth a ghost: through the manifest historical impossibility of its naturalisation, the postmodern is revealed as ideology in disguise, as the "reflex and the concomitant of yet another systemic modification of capitalism itself" [20].

Such is the nature of hauntological spectres. They are otherworldly insofar as they reveal the obscenity of the mundane, alien insofar as they uncover the alien in the familiar. Their haunting operates in two distinct ways: first, by bringing to the surface what ideology removes from perception (the relics of the unfulfilled postmodern terminal prophecy, first and foremost); second, they reveal that which never came to be (the spectre of Communism, in Derrida's original framing) and yet, as an acting void keeps operating against the current ideology by virtue of its very absence [12].

2.1 Sonic Hauntology

Fisher's musical aesthetics find their foundations in the integration of Derrida's notion of hauntology with Jameson's nostalgia mode.

In Metaphysics of Crackle, the author introduces the work of a small group of British musicians and producers at the beginning of the 21st century, whom he identifies as "sonic hauntologists" [15]. This group of artists, including William Basinski, The Caretaker, and the producers of the British Ghost Box Label, exposes, denounces and subverts the postmodern loss of meaning by magnifying the subtle uncanniness that is inherent to the nostalgia mechanism.

Sonic hauntologists activate this process in two distinct ways: on the temporal plane, by overlapping sonic remnants from distant aesthetics with electronic sounds from the second half of the 20th Century into dream-like, destabilising soundscapes; on the ontological plane, by overlapping phonographic remnants such as hiss, white noise, clicks and crackles, onto the transparency of the modern digital medium. This process, according to Fisher, unsettles "the very distinction between surface and depth, between background and foreground," and reveals the technical frame of the recording substrate that disappeared from the listeners' awareness with the advent of the digital.

Through these two mechanisms, nostalgia is both magnified and reversed: "Whereas [the latter] glosses over the temporal disjunctures, the hauntological artists foreground them by displacing the longing towards the futures that never came to be as a consequence of postmodernity's terminal temporality" [15]. In other words, by enacting the same processes by which the postmodern reproduces its own void, sonic hauntologists imagine (and mourn) the futures that never came to be, thus exorcising the postmodern implicit assumptions of universalism.

Fisher's metaphysics parallels Derrida's critique of the metaphysics of presence, wherein meaning is assigned and interpreted in relation to a body, that is, a body in the "now." By complementing ontology rather than opposing it, sonic hauntologists focus on absence and ambiguity, as their sonic spectres (dis)embody presence and absence beyond their opposing significations, and through the temporal paradoxes of the phonographic remnant haunt the exclusion of absence that is foundational to ontological thought. This focus on ambiguity and absence finds a compelling parallel with generative AI, in that the processes by which it models and mobilises human experience are founded upon a novel and unprecedented disruption of presence.

3. AI HAUNTOLOGY

A striking example of Fisher's hauntological aesthetics as applied to creative AI may be found in Petr Valek's AI-generated post-communist landscapes, haunted by anthropomorphic tractors, uncanny retrofuturistic aliens and eerie folklore creatures posing motionless for a non-existent observer. In these faded photographs, time seems to halt and space to fold, recombining distant causalities into zoomorphic agro-technological beings, suspended concrete structures hosting eerie creatures, cryptids holding hands with hooded kids and Afrofuturistic nightmares haunting bare Eastern-European landscapes.[8]

But it is in the sonic domain that Fisher's spectres are explicitly reframed into the AI discourse, with Rubinstein indicating AI-generated music as the natural heir of the sonic hauntology movement [35]. Rubinstein postulates that similarly to how sonic hauntology's eeriness stems from how it

[8]https://www.instagram.com/the.vape.noise/

Figure 2: Petr Valek, 2023

uses new technology to "remediate older sonic artefacts in ways that deliberately upset how the past is usually represented," generative AI reassembles the timeline of the source material in novel, eerie ways, and, through temporal disjunctures and logical discontinuities re-enacts the contradictions hiding underneath capitalism's a-temporalities.

If sonic hauntologists achieve the technological uncanny through the reconfiguration and juxtaposition of past aesthetics and the deliberate exposure of the medium, in AI-generated music temporal uncertainties and sonic anachronisms emerge as direct emanations of the algorithm's inner workings, independently and sometimes beyond the user's intentions. Through this mechanism, a technology often (and with good reasons) seen as the embodiment of technocapitalist accelerationism and greed for power centralisation might potentially be reconfigured as a favourable terrain for the emergence of a new critique, that might be harnessed by artists against the shallowness of the post-modern pastiche.

The idea of a hauntological potential intrinsic to AI echoes what Parisi defines as an alien subject, a space of thinking beyond the "servo-mechanic model of cybernetics" confronting a human-centred notion of cognition [27] and, according to Coleman, "in opposition to the reproduction of the same" [10]. Yet, as we have seen in Section 2, hauntological disjunctures operate as acting voids, they are subjectivities without subject, aliens only insofar as they inhabit the human. In other words, extending Calvino's far-seeing reflections on the possibility of cybernetic literature machines, AI spectres emerge "only if the (...) machine is surrounded by the hidden ghosts of the individual and of his society" [9].

Calvino deemed the ability of his speculative literary machines to recombine human knowledge as valuable in that, by operating beyond the cultural and political constraints of hegemonic thinking, they intersect the collective unconscious thus bringing about new forms of understanding; yet, little did he know that the cybernetic systems he was imagining would have been designed to model and statistically reconfigure the same knowledge he wished to expand, ultimately reproducing the very biases and cultural norms that constitute those boundaries.

To frame AI's hauntological agency within such technocultural boundaries, we therefore need to return to hauntology's Derridean roots, wherein the ghost, rather than from a deliberate expressive intent or an intrinsic property of the system, emerges as a side-effect of the reality check be-

tween the system's workings and the zeitgeist. Extending Žižek's quote, the hauntological in AI arises from the machinic slips of tongue, the hallucinations, and the temporal and causal disjunctures that emerge as the system operates with, within and against the culture, as the quintessential embodiment and exponential magnification of the postmodern pastiche into the 21st century.

If nostalgia re-enacts the paradoxes of capitalism as it reconfigures human existential history, generative AI's workings accelerate this process into a paroxysmal agential void, a ceaseless friction of human culture against itself. This mechanism produces a subtle sense of eeriness that conceals, and precisely by concealing betrays, hauntological disjunctures that might point to unresolved areas in our understanding of AI as a cultural phenomenon, and reveal the "conjurations," in Derrida's terms, behind our instrument designs' ontologies. In my practice, I activate and investigate these traces through the method of *AI hauntography*.

4. THE HAUNTOGRAPHIC METHOD

In the same way as hauntology complements ontology by extending its reach beyond the dualisms of presence and absence, hauntography may be seen as complementary to *ontography*, a methodology formalised by scholars from the Object Oriented Ontology (OOO) school of thought.

Harman assigns to ontography the task of dealing with the "limited number of dynamics that can occur between different things" [18], and Bogost frames it as the "revelation of object relationship without necessarily offering clarification of any kind"[5]. Examples are verbal and visual lists, exploded views and ontographic machines such as video games mapping abstract gestures to encyclopedic accounts of things. Beyond OOO, ontographs acquire slightly different nuances, such as in the case of Kuhn's graphical notations, depicting units within self-contained worlds.

On the other hand, the notion of hauntography has seen little to no theoretical formalisation as of yet. Whereas some use it as a synonym for spirit photography, namely the practice of taking photographs of moving subjects with prolonged exposure, Rich's Shipwreck Hauntography is by far the main academic formalisation of the concept. Within the field of shipwreck archaeology, Rich defines the hauntograph as the "ontograph for the revenant," in clear continuity with the discussed ontology-hauntology dualism, and hauntography as the speculative practice of "imagin[ing] the uncanny spatial and temporal ambiguities and tensions of a liminal object that is both present and absent" [34].

OOO's open critique of anthropocentrism makes it a fitting framework for a methodology involving humans, technological artefacts and liminal entities such as spectres; yet, as Frauenberger points out, OOO tends to dismiss relationships and interactions as ontologically relevant [16]. As we have seen in Section 3, hauntology is instead intrinsically relational, since its disjunctures emerge out of paradoxical overlappings between distant temporal and semantic planes and through frictions within complex social and technical assemblages.

I therefore view hauntography as complementary to other post-humanist ontologies such as Barad's agential realism and Latour's Actor-Network theory (ANT) [23], sharing with the former the radical relational take on the intra-active generation of meaning and matter, whilst incorporating in my practice the precise methodological approach of the latter (See 4.1).

Whereas in Barad's onto-epistemology being and knowing are fundamentally inseparable [4], in the case of hauntography knowledge is inseparable from ontology's hauntological

shadow. This direct epistemic scope is where my framing of hauntography differs from Rich's, in that instead of "imagining and reflecting upon temporal tensions and ambiguities," we activate and magnify their sub-liminal manifestations within the subject. Based on this premise, we may define the components of the hauntological investigation as follows:

- **Hauntogram**: A conceptual construct encompassing the unresolved tensions, echoes and resonances that are liminal to the ontology of a subject.

- **Hauntological Trace**: An observable manifestation of the hauntogram. A construct embodying the subjectively and objectively sensible effects of a hauntogram as it operates with and within a given sociocultural system.

- **Hauntography**: The practice-based activation of the hauntogram through the iterative incorporation, magnification and observation of the hauntological traces it produces.

- **Hauntograph**: The theoretical and/or practice-based outcome of the hauntographic process.

4.1 AI hauntography

Hauntography is essentially a practice-based methodology and, therefore, it is highly dependent on the researcher's area of expertise and expressive means. The methods used to activate and incorporate the hauntological in one's work and the qualitative approaches to data collection and analysis should reflect this, thus varying depending on subject, discipline and context. This methodological flexibility allows the researcher to dynamically adapt and respond to the hauntogram's inherent ontological instability. Yet, within this malleability, a few constants allow us to delineate with reasonable certainty what AI hauntography is and is not:

- As we engage in AI hauntography, we activate and magnify the hauntological to deconstruct the ontological solidity of the subject. One way of doing this with creative AI is by applying the methods of sonic hauntologists: by magnifying AI's hauntological traces (See 2.1) we reveal the statistical flattening of the source material and the processes activated by its algorithmic manipulation.

- By activating these spectral processes, we reconfigure our understanding of the subject. In the case of creative AI, this implies both a creative subversion and a theoretical reframing of issues such as agency, authorship, and intent.

- As we engage in these processes, we embed our thinking in new, hauntologically-inspired artistic works and technical objects (interfaces, AI models, artworks), in themselves epistemic tools within a rhizomatic process of knowledge production.

In my practice with NIMEs, I complement hauntography with the analytical tools of ANT, since this framework has been frequently combined with practice-based research and provides a rigorous yet flexible approach to the qualitative analysis of sociotechnical assemblages [23].

Indeed, ANT attributes the role of actant to any element in a given network, be it human, machinic, or merely conceptual, as long as it plays a part in the negotiations and transformations of the system. Another advantage of ANT

as applied to AI hauntography is that actants are viewed as a temporary assemblage of multiple actors, depending on the level of abstraction that is functional to the analysis. This allows us to follow the hauntological traces as they move in between different networks and musical assemblages, and as they ripple into the social.

As we slowly navigate from a micro to a macro perspective, we may transition from what Latour defines as *sociology of associations* to the broader *sociology of the social* [23]. Examples of the latter are the tools offered by spectral ethnography, where traces emerge in *ghost texts* as invisible dialogues between people and their material surroundings [2], by critical heritage practices searching for colonial traces inside a culture's artefacts, and critical Marxist theory, in which hauntology was first conceived.

4.2 AI Hauntography in Practice

In Latour's words, "ANT is a painstakingly slow process," and hauntography inherits and multiplies this property by extending the analysis of a single network to the transformations occurring as the trace translates from one network to another. We must therefore defer this exercise to future works, wherein, having established a solid theoretical framework, we will dig into the hauntological processes of specific sociotechnical systems and musical assemblages.

Nevertheless, to better contextualise this framework, it is worth introducing two, intertwined macro-areas where AI's hauntological traces have emerged in my practice with NIMEs, ultimately leading me to formulate the ideas discussed herein: one regarding the architecture's internal workings, and one concerning the frictions of the model with the broader social context.

The former type of trace is produced by the negotiations between AI's inherently twofold algorithmic and data-driven nature. Generalising, whereas our experience of subject, background, sound, timbre and structure is contextual and holistic, AI architectures have little to no understanding of context, and model a limited amount of features from the dataset they are trained with; in addition, since they are designed to recognise patterns, AI algorithms learn correlations where causation is not necessarily present [11]. The list may extend, encompassing other model-specific constraints, the methodologies applied for the curation of the dataset, and the process of training, all contributing to the generation of partial and decontextualised outputs that ultimately produce the sense of out-of-jointness, the technological uncanny from which the hauntological arises.

This first process of trace-making was evident as I performed with Stacco (Figure 3), a NIME developed with Giacomo Lepri and based on neural synthesis [8]. Stacco features a series of magnetic sensors and attractors under a wooden board, on top of which the performer throws and displaces magnetic spheres of variable dimensions. Due to its shape and to the peculiar interaction design, Stacco reminds of an Ouija board with whom the performer playfully summons the sonic spectres lurking within the model.

By building on this metaphor, I developed Mouja (Figure3), a performance in which I theatrically explore multiple, overlapping neural synthesis models and the liminal, unpopulated areas in their latent spaces. In Mouja, unintelligible vocal reconstructions bear the traces of the model's rumination, vinyl crackles emerge from old organ sounds, granular choirs whisper uncanny phonemes, and the distant temporal planes of the source material, rather than fading behind processes of algorithmic interpolation, confront the viewers with their incongruous juxtapositions.

A second, higher-level process of trace-making is instead

Figure 3: Nicola Privato, Mouja. Fabryka Sztuki, Poland, 2023. Credits Marta Zajac-Krysiak.

at play in the system's mobilisation of the data: the active reconfiguration of knowledge, performed in response to the user's inputs. Hauntological traces emerge here beyond the duality of dataset and algorithm; we may see these as meta-remnants, so to say, in that instead of bringing forth the technological substrate or the spectral partiality of the data, through the agency of the interface they evoke their human simulacra.

The hauntological disjuncture at play here is between the presence of a disembodied form of knowledge and the absence that such disembodiment brings forth. The traces that this produces depend on a multiplicity of contextual and cultural factors, such as the degree of agency of the system, the context in which it operates, the methodologies applied for curating the data and the user's acquaintance with it. In a way, generative AI is here seen as a medium in disguise, although one endowed with a high degree of agency [19].

These traces arose with striking evidence as I worked on an installation in Nelson, Lancashire, for the British Textile Biennial with artist Eva Sajovic (Figure 4). For this work, exploring participatory practice and cultural heritage, we created four interactive e-textile columns, embedding speakers in each of them and around the structure, thus turning the installation into a large-scale musical instrument. We then trained four RAVE [8] models with machinic and natural soundscapes collected by people from the community in a series of workshops around the abandoned mills, and assigned a model to each of the columns.

Before the training, I spent time interviewing the participants, asking the reasons behind their choices in the recording phase, associating sounds with places, places with stories, and stories with people. Once I activated the models, I found myself immersed in the overlapping, disembodied remnants of those stories and people, echoing the community's lived experience and interpersonal bonds. The man-

ifest absence of the subjects, that is, the acting bodies of the people who contributed to the work, brought forth the hauntological acting void (See 2), re-enacting and magnifying the processes of human displacement and technological substitution that have been shaping this area and its people since the first industrial revolution.

Figure 4: Eva Sajovic and Nicola Privato. End of Empire, British Textile Biennial, UK. 2023.

5. CONCLUSIONS

This contribution delineates a broad picture of hauntology, encompassing those spectral, critical and aesthetic theories that question and complement the metaphysics of presence.

Derrida's notion of hauntology turns presence into a conjuration, and the subject into the simulacrum of its unfulfilled promises, threatened by forces operating through their very absence. Creative AI embodies the hauntological through the exponential acceleration of nostalgia's processes of juxtaposition and de-signification of the source material.

The frictions that this mechanism produces as it operates with and within the culture bring forth the technological uncanny, the Shakespearean "out-of-jointness," the sensible trace of a hauntological disjuncture. AI hauntography leverages this mechanism: it subverts nostalgia to reveal the hauntological processes hidden behind such disjunctures. In practice, this may be done by applying the methods of sonic hauntologists, that is, by revealing the processes of temporal flattening and semantic depletion of the source material, and by reflecting on the outcomes.

Even though this paper formalizes the method of hauntography to investigate AI, it is nonetheless possible to extend this framework beyond this domain, and, with appropriate adaptations, apply it to the broader fields of NIME design and HCI practices.

Indeed, Derrida's hauntology is fundamentally a deconstructive method, which can be reframed to explore the implicit history of designed objects, to investigate their ontological porosity, to re-interpret design decisions and bring forth hidden assumptions, to understand how our systems adapt to the culture and reveal the traces of such adaptations.

This epistemic scope makes hauntography a unique methodology in supplementing ontological thinking, and it frames it as an ideal strategy to make sense of the technical, social and cultural phenomenon of creative AI.

6. ETHICAL STANDARDS

The data used to train the models described in 4.2 was collected and deployed with the consent of the participants, and used within the limits of the artistic work we described.

7. ACKNOWLEDGMENTS

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