Noise as a Spectre in Dub Techno

Feature Article

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Abstract

This article explores dub techno's history and sonic characteristics, focusing on the role of noise as a critical stylistic element. It introduces hauntology as a hermeneutic framework to understand the intricate function of noise within the genre. This interpretive paradigm elevates noise beyond mere auditory embellishments, imbuing it with significant philosophical resonance. The article presents a chronological exegesis of dub techno's evolution and positions it as a conduit for philosophical contemplation. It highlights the enigmatic aesthetic essence of noise, urging readers to reevaluate its role in dub techno and electronic dance music. The objective is to offer insights and promote understanding, encouraging readers to engage with noise as a key component of philosophical and aesthetic discourse in dub techno.

Keywords: dub techno, aesthetics, noise, hauntology, electronic dance music

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Understanding Noise and Temporal Dislocation in Dub Techno

In dub techno, noise is a distinctive element, creating an enigmatic auditory landscape. Noise operates as a sonic disruptor and an essential layer, blending chaos and order. It imbues compositions with texture, evoking both intimacy and expansiveness. Noise serves as a conduit for expressing intricate emotional nuances and conceptual complexities, transforming sound into compositions that challenge conventional categorizations.

Noise's relationship with hauntology, a concept coined by Jacques Derrida and shaped by Mark Fisher, is pivotal in dub techno. The term refers to the temporal dissonance that arises when elements from the past infiltrate the present, casting a ghostly shadow on the contemporary (Coverley 2021: 8). This framework resonates with noise in dub techno, where sonic artifacts from diverse temporal origins converge. Noise becomes a portal through which the past echoes into the present, fostering a profound sense of temporal and emotional dislocation.

History and Sound of Dub Techno

When examining the genesis of dub techno through an isolated lens, an atypical narrative emerges, distinct from the gradual historical, political and cultural forces often associated with music genres. A thorough analysis of various digital sources boldly suggests that the inception of the genre is commonly attributed to the creative minds of Moritz von Oswald and Mark Ernestus, known collectively as Basic Channel. This attribution is so deeply ingrained that it implies dub techno's "invention" hinged on a specific mixing technique pioneered by von Oswald and Ernestus in the early 1990s (Baines 2015). This technique, characterized by the heavy use of reverb, delay and spatial effects, transformed traditional techno rhythms into immersive, atmospheric soundscapes. Von Oswald himself echoes this sentiment, reminiscing about his tenure in a record shop during the early 1980s, where he was immersed in imported reggae records, particularly those curated by Lee Perry (Schmidt 2008). These reggae influences would later resurface with heightened resonance in the early 1990s, triggered by Ernestus' deeper engagement with reggae music and culminating in the co-founding of Basic Channel, the seminal dub techno record label (Schmidt 2008).

Chronologically delineated, von Oswald and Ernestus's creative synergy unfolds through a series of labels established between 1992 and 1997. This chronicle, encompassing Maurizio (1992), Basic Channel (1993), Main Street Records (1994), Chain Reaction (1995) and Rhythm & Sound (1997), serves as a canvas for nuanced auditory variations, each layer building upon the fundamental ethos of dub techno (Dub Monitor 2021). This ethos, rooted in the fusion of deep, minimal techno rhythms with the spatial effects and improvisational techniques of dub music, creates an immersive and atmospheric listening experience. Vinyl emerges as the quintessential conduit for the genre's expression, a sentiment echoed by Ansgar Jerrentrup's assertion that techno's essence is intrinsically bound to this format due to the physical engagement it demands from DJs and listeners (2000: 67). Dub techno's

evolution as collaborative enterprises birth a medley of labels, resulting in a distinct auditory realm that reverberates with homage to its origins while venturing into uncharted sonic territories (Spruill 2022).

Influences and Innovations

On another note, the friendship between von Oswald and Lloyd "Bullwackie" Barnes, frequently discussed within the context of dub, blossomed in New York and significantly molded von Oswald's production outlook (Schmidt 2008).[1] It is reasonable to surmise that von Oswald possessed a keen understanding of the dub version culture, an integral aspect of dub music. He recounts delving into the realm of Jamaican dub traditions, with a particular highlight on a remix endeavor showcased in The Chosen Brothers and Rhythm & Sound's 1998 album *Mango Walk*. In this instance, von Oswald embraced the B-side approach, crafting a remix edition of the original track featured on the reverse side of the record (Schmidt 2008). Reflecting on his exploration beyond the confines of Berlin's techno scene and the assimilation of dub music's mixing techniques and aesthetics into his own production domain, von Oswald attributes this transformative journey to Mark Ernestus' fervor for dub music. Notably, in an interview, he identifies Bullwackie as a catalytic influence that helped shape the duo's sonic identity (Red Bull Music Academy 2018). In the same interview, von Oswald delves into the distinctive low-frequency essence that characterizes the New York dub sound, using Bullwackie's mixing methodology as a paradigm. In this discourse, von Oswald underscores that within the realm of New York's dub sound, low frequencies reverberate "more like a pulse" rather than conforming to conventional bass patterns (Schmidt 2008). Within a broader context, it becomes lucid that von Oswald's fascination with the role of low frequencies, emblematic of dub music, remains a central motif in this exploration.

Alessio Kolioulis suggests that von Oswald and Ernestus' quest for "new, revolutionary sounds" during 1993-1995 was spurred by their dissatisfaction with the increasingly popular Berlin club techno scene (2015: 78). This dissatisfaction stemmed from the scene's tendency towards uniformity, commercialization and a focus on more aggressive, dancefloor-oriented tracks, which they felt lacked depth and artistic exploration. This view highlights dub techno's distinctness from techno's broader phenomenon, particularly the Berlin or Detroit techno sound. Despite von Oswald's ties to Detroit's techno community, he asserted that his produced music did not align with Detroit techno's identity (Red Bull Music Academy 2018). This assertion, made by von Oswald himself, hints at the nuanced divergence of dub techno from established techno norms. It is fair to infer that dub techno draws from dub music's mixing approach, evident in the term "dub". Labels by von Oswald and Ernestus during 1993-1995, especially Basic Channel, reinvigorated dub through their influence (Kolioulis 2015: 77).

Aesthetic and Sonic Features

Dub techno's minimalist structure lends an atmospheric, ambient quality (Spruill 2022). This entwines it with ambient music (Baines 2015). Kolioulis contends that the synergy between minimalism and dub gave birth to dub techno, echoing Jerrentrup's foresight about minimalist-technoid structures shaping techno's trajectory (2015: 77; 2000: 67). Dub techno engenders a "futuristic melancholy", amalgamating urban soundscapes with electronic dub music (Kolioulis 2015: 65). This fusion, capturing the "warmth and humanity" of dub alongside techno's "precise, mechanistic iciness", exemplifies von Oswald and Ernestus' craftsmanship (Baines 2015). Spruill elaborates that dub techno, with its tempo of 120-130 BPM and four-on-the-floor foundation, gives classic dub elements a "dub techno twist" (2022). This stands in contrast to the slower tempo and characteristic syncopation of Jamaican dub, which typically features tempos around 60-90 BPM and emphasizes off-beat rhythms. Notably, dub techno assimilates dub music's delay technique, yielding a distinct echo effect (Kolioulis 2015: 65). Online tutorials often promote "distorted" and "noise-driven" elements as essential components of dub techno, exemplified by techniques such as snare drum processing and echo creation (Esen 2021).

The inheritance of the concept of live improvisation in dub techno's production, as expounded within this work, can be discerned as a direct offshoot of the console practices prevalent in dub music's production and performance arena. The integration of live performance within the tapestry of dub music engendered a metamorphosis of mixing engineers into veritable "creative engineers", an attribute that notably resonates in the realm of dub techno (Vendryes 2015: 12). Von Oswald emphasized the importance of live mixing in dub techno, showcasing how artists can skillfully manipulate echoes and create a spacious sound without overcrowding the mix. This improvisational fluidity extends its embrace to the notion of spontaneous recording within dub techno compositions. Oswald's outlook on embracing sonic imperfections, guided by the resonance of the prevailing vibe, finds a harmonious consonance with the ethos of dub techno (Schmidt 2008). The discernment of the listener's perspective during the dynamic process of live mixing emerges as a pivotal facet, one that Oswald describes as the "ability to listen to the music with other people's ears", encapsulating not only the essential character of dub techno but also its entwined relationship with hardware-oriented contemplations (Red Bull Music Academy 2018).

The nexus of noise as a narrative, stylistic or evocative leitmotif within the soundscape of dub techno profoundly shapes the very essence of this genre.[2] Spruill proclaims that the acute emphasis of dub techno on "micro" nuances such as hisses and fuzz augments our perceptual insight into its intricate spatial dimensions (2022). These diminutive sonic fragments, akin to intricately woven threads, substantiate the multi-dimensional auditory realm of dub techno, wherein each sonic component attains a state of organic resonance, flourishing within its aural habitat (Spruill 2022). Oswald, in his explication of noise's role within dub techno, extols the profound contribution of analog hardware to the genre,

underlining that noise does not reside as a blemish, but rather is an inherent constituent, enriching the very ambiance of the musical narrative (Red Bull Music Academy 2008).

Cultural Shifts and Comparative Analysis

In exploring the nuances of dub techno, it is evident that the genre stands as a distinctive departure from its roots in traditional dub through both its auditory features and the context in which it is experienced. While dub is deeply entrenched in a community-based sound system culture—marked by an enveloping bass that one feels as much as hears, and a rich use of echo and reverb to animate physical spaces—dub techno diverges into a realm that emphasizes a more introspective and solitary auditory experience. This transition is exemplified by the work of early dub techno producers who melded the resonant textures of dub with the structured, repetitive rhythms of techno, crafting a sound that promotes personal introspection over communal vibrancy. Furthermore, dub techno's approach to sound involves a layering of echoes and reverbs that is more textured than in traditional dub. These layers are not merely for dancefloor dynamics but are designed to create a profound, immersive experience that resonates over time, encouraging a form of sonic meditation. This depth of sound illustrates a shift from the immediate physical response sought in communal dub settings to a reflective engagement suited to private listening environments.[3]

The synthesis of dub and techno into dub techno marks not just a stylistic evolution but a cultural shift in how music is experienced—from vibrant communal gatherings around sound systems in dub to more isolated listening experiences in dub techno. This transformation underscores a broader societal shift towards personal media consumption, and it reflects the evolving relationship between technology, music and listeners in the digital age.

The classification of dub techno often necessitates its contextualization through the prism of comparative analysis with genres that share proximate auditory attributes. This thematic affinity with electronic ambient music underscores a shared foundational framework in music production. Certain quarters emphasize the stylistic congruence betwixt ambient and dub techno (Dub Monitor 2022). Oswald, however, is skeptical about rigid categorical confines when contemplating musical genres comes to the fore (Schmidt 2008). He resolutely eschews tethering his compositions to the club milieu, adamantly rejecting the premise of demarcating dub and techno along the axis of their club-affiliated tenets (Schmidt 2008). Oswald's critical reflections on the proclivity of techno aficionados to dismiss Western classical music as "archaic" serve as a revealing window into his nuanced musical perspective (Schmidt 2008). Dub Monitor posits an expansive vista for genre definitions, invoking sensory resonance, energy modulation, stylistic nuances and points of inception in the taxonomic contemplation of sub-genres like deep techno (2021). Possessing shared attributes with deep techno—characterized by a leisurely tempo, nuanced structural composition and the conspicuous presence of a prominent noise layer—dub techno emerges as an embedded sub-genre within this milieu (Dub Monitor 2021).[4]

Literature Review

The investigation of dub techno and the role of noise within the genre intersects with numerous scholarly discussions on hauntology and the conceptualization of noise. This section synthesizes existing literature to provide a comprehensive understanding of these themes. By examining how noise functions as a stylistic and philosophical element in dub techno, this review sets the stage for a deeper exploration of the genre's sonic and cultural implications. It also introduces the theoretical framework of hauntology, which offers critical insights into the historical and hauntological dimensions of noise in music.

Hauntology in Music

Several scholars have employed the concept of hauntology to analyze different facets of music, illustrating how this philosophical approach reveals the complex interplay between historical influences and contemporary soundscapes.

Mark Fisher's (2013) article, *The Metaphysics of Crackle: Afrofuturism and Hauntology*, links past and future through hauntology and Afrofuturism in music. Fisher discusses how electronic genres like dub and hip-hop engage with spectral remnants of past forms, challenging conventional time and narrative boundaries. Producers like Burial and The Caretaker use hauntological practices to evoke pastness with vinyl crackles and outdated samples, creating soundscapes that feel both ancient and futuristic. Fisher's analysis explores how music recontextualizes historical sounds to critique modern cultural and technological conditions, highlighting music's role in navigating historical narratives (Fisher 2013: 42).

Nchamah Miller (2023) delves into hauntology in Jacques Derrida's work, focusing on historical discourse. In *History and Hauntology in Jacques Derrida's Spectres of Marx*, Miller explains how Derrida uses hauntology to reinterpret Marx's historical materialism, emphasizing spectral presences in Marx's writings that represent unresolved ideologies and futures haunting contemporary society.[5] This challenges traditional linear history, proposing a continuously haunted narrative. Miller's insights extend to music, showing how past musical forms and their ideologies continue to shape contemporary music (2023: 2).

Yair Rubinstein's (2020) study, *Uneasy Listening: Towards a Hauntology of AI-Generated Music*, examines hauntology in AI-generated music. Rubinstein explores how AI reanimates past auditory elements, creating music that is uncannily familiar and unsettling. AI often mimics past genres, echoing their styles and creating eerie familiarity, which critiques postmodern cultural production by flattening historical depth into aesthetic styles. Rubinstein highlights how technology perpetuates and transforms musical legacies, examining digital technologies' impact on cultural and historical perceptions in music (2020: 77).

Clinton McCallum's (2005) examination of John Oswald's Plexure in *The Hauntology of Music: Adorno, Freud, and Derrida in John Oswald's Plexure* illustrates hauntology in musical compositions through plunderphonics, where past musical elements haunt present compositions. McCallum critiques how Oswald's work both replicates and subverts the

commercial music industry's strategies using Adorno's theory of the culture industry and Freud's theories of memory and the unconscious, linking listeners to forgotten memories and emotions (2005: 1).

Alessio Kolioulis's (2015) article, B*orderlands: Dub Techno's Hauntological Politics of Acoustic Ecology,* explores how dub techno reflects and critiques urban and socio-political environments. Dub techno uses echoes of industrial and post-industrial cityscapes to reflect political and economic transformations, mapping urban landscapes through sound. Kolioulis shows how dub techno's hauntological aspects provide insights into broader socio-political issues, using the genre to critique and reflect the conditions under which it is produced (2015: 64).

These scholars collectively highlight the interconnections between hauntology and music, emphasizing the role of spectral presences and historical influences in shaping contemporary soundscapes. This paper contributes to this literature by specifically examining how hauntology informs the production techniques and aesthetic choices in dub techno, providing a nuanced understanding of how historical echoes and socio-political contexts are embedded in the genre's sound design. By exploring these dimensions, this study adds to the discourse on hauntology in music by illustrating the unique ways dub techno engages with and reflects its historical and cultural environment.

Defining Noise

Parallel to these hauntological discussions, the exploration of the definition of noise reveals a dynamic and multifaceted discourse that stretches across disciplines and eras.

Marshall Bartholomew (1942), in *Acoustics of Music*, defines noise as sound lacking tone due to its complexity or irregularity, disrupting the clarity of musical tones. He acknowledges a spectrum rather than a dichotomy between tone and noise, reflecting the subjectivity in perceiving sound (Bartholomew 1942: 159). This spectrum view leads to Alan P. Meriam's sociocultural analysis in *The Anthropology of Music*, which emphasizes the importance of distinguishing music from noise within societies to maintain cultural identity through sound (1964: 63).

Meriam's cultural constructs segue into Jacques Attali's (1985) radical interpretation of noise as organized sound in *The Political Economy of Music*. Attali views music as an organization of noise into harmony, introducing a political dimension where noise and its organization reflect and shape societal realities (1985: 4-24). This perspective links to John Foreman's (1990) practical concerns in "Basics of Sound", defining noise as unwanted sound disrupting daily activities, highlighting its subjective nature as an irritant (1990: 1).

Foreman's focus on noise's impact complements Kristoffer Jensen's (2004) technical analysis in *Irregularities, Noise, and Random Fluctuations in Musical Sounds*, which defines noise as non-tonal sounds changing unpredictably over time. Jensen (2004) illustrates noise as an integral component of the sound environment, adding texture to musical expressions. Paul Hegarty's (2005) *Noise/Music* expands on this by arguing that noise's definition is

subjective, shaped by cultural influences and individual perceptions, revealing its relative nature within societal frameworks (2005).

Greg Hainge's (2013) *Noise Matters* asserts that understanding noise requires acknowledging its inherent subjectivity and engaging with it philosophically. Hainge urges a shift towards an exploratory approach to noise within cultural studies (2013: 1). This sets the stage for Darrin Verhagen's (2015) *Noise, Music, and Perception*, which defines noise as lacking harmony and organization, stressing its subjective perception and advocating for an inclusive understanding of auditory experiences.

Verhagen's insights align with Eleonora Montuschi's (2017) arguments in *There is 'Noise' and Noise*, emphasizing that noise should not be inherently negative. Montuschi (2017) calls for a paradigm shift in perceiving noise, suggesting contemporary technologies can decipher its complex nature, redefining it in a nuanced light.

These varying perspectives illustrate that the definition of noise is fluid and context-dependent, shaped by cultural, technical and philosophical lenses. This paper will utilize these definitions to explore how noise functions within dub techno, examining how the genre employs noise both as a creative tool and as a commentary on technological and societal conditions. By analyzing the specific uses of noise in dub techno, this study contributes to our broader understanding of noise by highlighting its multifaceted role in music production and cultural critique.

Noise as a Spectre

In 1983, Jacques Derrida prophesied a forthcoming integration of ghosts into the fabric of existence, positing that "ghosts are a part of the future" (Coverley 2021: 8). Derrida introduced the concept of "hauntology" to the realm of literary discourse, ingeniously coining it as a play on "ontology" in his work *Specters of Marx* published in 1993 (Coverley 2021: 10).The influence of thinkers such as Mark Fisher subsequently propelled hauntology studies into prominence, imbuing the term with significance. Derrida's formulation employed the notion of specters to delineate instances where the past exerts its influence upon the future, perpetually haunting it in various enigmatic ways. In this context, Derrida's specters assume the symbolic embodiment of an elusive and intricate unity between the past and the future.

The diffusion of the hauntology concept into the domain of music criticism and analysis can be traced back to Simon Reynolds' use of the term in a music blog in 2005 (Coverley 2021: 9). The terms "haunting" and "haunted" resonate across an array of canonical and non-canonical sources that seek to elucidate the sonic characteristics of dub techno. To approach dub techno from a hauntological standpoint, the conceptual boundaries delineated by Mark Fisher become pertinent. Fisher's perspective posits hauntology as a framework wherein the present can only be apprehended as "a sum of its pasts" (2012: 16). In Fisher's paradigm, electronic music, especially post-2005, has failed to yield creations with genuine

future-shaping potential. This discernible trend of post-millennium electronic music lacking groundbreaking innovations is underscored by Fisher's assertion that "practically anything produced in the 2000s could have been recorded in the 1990s" (2012: 16). This phenomenon, characterized by electronic music's entrenchment in retrospection, has resulted in its diminishing capacity for pioneering futuristic narratives.

Fisher's articulation of hauntology comes to the fore in the context of this phenomenon. Coverley underscores that Fisher contends the first decade of the 21st century has rendered the future's imaginative faculties impotent, resulting in distortion, deceleration, stagnation and regression of "cultural time" (2021: 9). Fisher's hauntological perspective underscores the repercussion of a lack of creative future imagination, driving contemporary musical practices towards perpetuating past patterns and stifling humanity's collective musical vision. Consequently, hauntology accentuates the present's dearth of originality in musical creation and the failure of recent political, intellectual and material advancements to instill hope for the future. Hauntology's conceptual tenets shine a spotlight on junctures where alternative trajectories, distinct from historical pathways, could be pursued (Coverley 2021: 10). Fisher's endeavor, in light of the decline of counterculture's revolutionary essence by the 1970s, aimed to resuscitate the latent potential of an era that preceded the ascendance of neoliberalism (Coverley 2010: 10). In this vein, Fisher's pursuit sought to counteract the pervasive proliferation of late capitalism and reclaim the possibilities of a time before neoliberalism's entrenched dominance.

Recognition must be accorded to Fisher's unambiguous declaration that electronic music has encountered a state of "failure" (2012: 16). This declaration emanates from the observation that rather than ushering in novelty and venturing into uncharted realms, electronic music—spanning from high culture composers to popular music ensembles—has plunged into a retrospective impasse, ceaselessly reiterating established paradigms. This proclivity can be comprehended through the lens of a broad political backdrop. In essence, the phenomenon wherein exclusively the echoes of the past reverberate and, furthermore, these historical sonances are revisited in an era where they exclusively resonate, constitutes one of the byproducts of the transition from a hauntological standpoint to a neoliberal milieu.

Noise in Dub Techno: An Empirical Overview

Upon an examination of the nexus between Fisher's thought-provoking discourse and electronic music, a peculiar vantage point emerges for approaching the notion of noise within music production. This perspective holds relevance in the context of dub techno as well. Delving into the foundational underpinnings of dub techno, Oswald ponders the transformation of noise into an unwelcome presence due to the advent of technological advancements that yield sonorities of pristine clarity (Red Bull Music Academy 2018). He contends that noise, stemming from the acoustic properties of the hardware employed in the early manifestations of dub techno—owing to the intrinsic noisiness of analog equipment—necessitates reevaluation. Oswald subtly implies that noise ought not to be inherently

perturbing, advocating for the retention of noise within the musical fabric. Moreover, he expounds that noise can, in certain instances, serve as an invaluable narrative facet within the structure of dub techno, thus enabling the genre to adopt a distinctive narrative idiom (Red Bull Music Academy 2018). Consequently, within Oswald's construct, noise attains the status of an essential stratum in the composition of dub techno. In a sense, Oswald's disposition encapsulated by the maxim "if the vibe's right . . . let's go for it" espouses a rejection of noise's outright exclusion, thereby solidifying noise as an integral element of the dub techno soundscape for those adhering to such an ethos (Schmidt 2008). This inclination toward stylistic noise integration is palpable across a multitude of tracks that reside within the framework of dub techno sonority. Notably, the pervasive utilization of noise as a compositional facet within the domain of dub techno merits thoughtful contemplation. Below, Figure 1 offers a comprehensive compilation of 50 distinctive dub techno tracks, each paired with its respective producer, track title, year of release and identifiable noise type.[6] This assemblage furnishes a panoramic view of dub techno compositions imbued with noise, engendering insights into the intricate interplay between noise and the sonic tapestry of this genre.

	Producer	Track Title	Release	Noise Type
1	Susumu Yokota	Kinoko	1994	Forest
2	burger/ink	Elvism	1996	Static
3	Alex Cortex	Nachtariff - Original	1996	Vinyl Crackle
4	Pole	Rondell Eins	1998	Static
5	Maurizio	M04.5a	1997	Static
6	Pole	Stadt	1999	Vinyl Crackle
7	Fluxion	Largo	1999	Vinyl Crackle
8	Rhythm & Sound	Carrier	2001	Static
9	Jan Jelinek	Rock In the Video Age	2001	Vinyl Crackle
10	Rod Modell	Kingston	2003	Static
11	Biosphere	Fall In Fall Out	2006	Vinyl Crackle
12	STL	Loop 006	2007	Static
13	Quantec	Deliberate	2008	Static
14	Pulshar	Nospheratu	2008	Vinyl Crackle
15	Intrusion	Montego Bay	2009	Static
16	Dainel Stefanik	Reactivity 8	2009	Indoor
17	Intrusion	Intrusion Dub	2009	Static
18	Leo Cavallo	Null 01	2010	Vinyl Crackle
19	Gunnar Jonsson	Morgonanga	2010	Static
20	Marko Furstenberg	Site 312	2010	Static
21	Dublicator	Elasticity	2011	Static
22	Djorvin Clain	Fragile Care	2010	Static
23	Shinsuke Matsumoto	Iantern	2011	Rain
24	Martin Schulte	Urban Wind	2011	Vinyl Crackle

Figure 1. List of 50 different dub techno tracks with identified noise.

25	Dublicator	Compact Impulse	2011	Static
26	Yagya	The Salt On Her Cheeks	2012	Rain
27	Sensual Physics	Dust Mite No.56 - Original	2012	Vinyl Crackle
28	Tomas Rubeck	Factions	2012	Static
29	Terekke	Amaze	2013	Static
30	Dub Taylor	Urban Silence III	2013	Static
31	Stephen Hitchell	For Convextion	2014	Static
32	Aris Kindt	Embers	2015	Vinyl Crackle
33	Yagya	The Great Attractor	2016	Static
34	Federsen	Oz	2016	Vinyl Crackle
35	Jon Fay	1271	2016	Static
36	Ben Bitendijk	Near Mint	2016	Vinyl Crackle
37	Upwellings	Slow Lane	2017	Static
38	Sebastian Mullaert	Wings of Remembrance	2017	Static
39	Deepchord	Point Reyes	2017	Static
40	Patricia	Shiba Inu Dub	2017	Static
41	Shinichi Atobe	First Plate 3	2017	Vinyl Crackle
42	Christopher Rau	Virologen	2018	Static
43	Vakula	New Sensations	2018	Static
44	Roman Poncet	Gypsophila	2018	Static
45	Yagya	Mountain Story	2020	Rain
46	Babe Roots	Over Babylon	2020	Vinyl Crackle
47	Forest Drive West	Creation Dub	2020	Static
48	Heavenchord	Lunar Dub	2020	Static
49	Mohlao	Cut	2021	Static
50	Milian Mori	I Listen 1	2022	Static

FIGURE 1 (CONTINUED). LIST OF 50 DIFFERENT DUB TECHNO TRACKS WITH IDENTIFIED NOISE.

Upon scrutiny of the chart, discernible patterns and trends emerge. The deliberate integration of noise into dub techno tracks emerges as a nuanced artistic choice, marked by an array of noise types that contribute multifarious sonic attributes to each composition. This span of noise typologies encompasses traditional elements such as vinyl crackle and static, as well as unconventional auditory elements including rain, indoor sounds and forest ambiance. This assortment underscores the genre's wide-ranging acoustic palette, elucidating how noise functions as a versatile medium for sonic experimentation. The temporal distribution of tracks encapsulated within this chart unveils the genre's temporal continuum and its evolutionary trajectory. Encompassing a timespan from 1994-2022, this chronicle enshrines nearly three decades of dub techno production. This temporal expanse is emblematic of the genre's enduring allure and its adaptational prowess, transcending generational boundaries to captivate listeners and galvanize creators across epochs.

Upon closer examination of the types and distribution of noise within dub techno, salient thematic trajectories emerge. Notably, the persistent presence of vinyl crackle, an auditory emblem of the analog epoch in music production, underscores the genre's ongoing homage to its nascent analog origins. This enduring auditory element highlights the genre's deep-rooted connection to its historical beginnings, reaffirming its commitment

to preserving the essence of its foundational sound. Furthermore, the incorporation of unconventional noise types such as rain and indoor sounds augments the genre's capacity for sonic innovation, extending its auditory horizons beyond conventional paradigms to encompass more immersive and atmospheric auditory experiences. Noteworthy is the alignment of certain noise types with specific track titles, imbuing compositions with nuanced layers of significance. It invites contemplation regarding the deliberate pairing of noise types and track titles, and whether this nexus imparts a deeper stratum of meaning, thereby eliciting specific emotive and perceptual responses in the audience. The inclusion of noise types articulates the genre's capacity to weave intricate auditory narratives, encompassing realms that span the gamut from nostalgic evocations to futuristic visions, from tranquil ambiances to the fringes of the avant-garde. Perpetually evolving, dub techno's engagement with noise as a stylistic tenet underscores its resonance as a bedrock of the genre's sonic identity, effectually resonating with its auditors on a profound sensory and emotive plane (Figure 2).

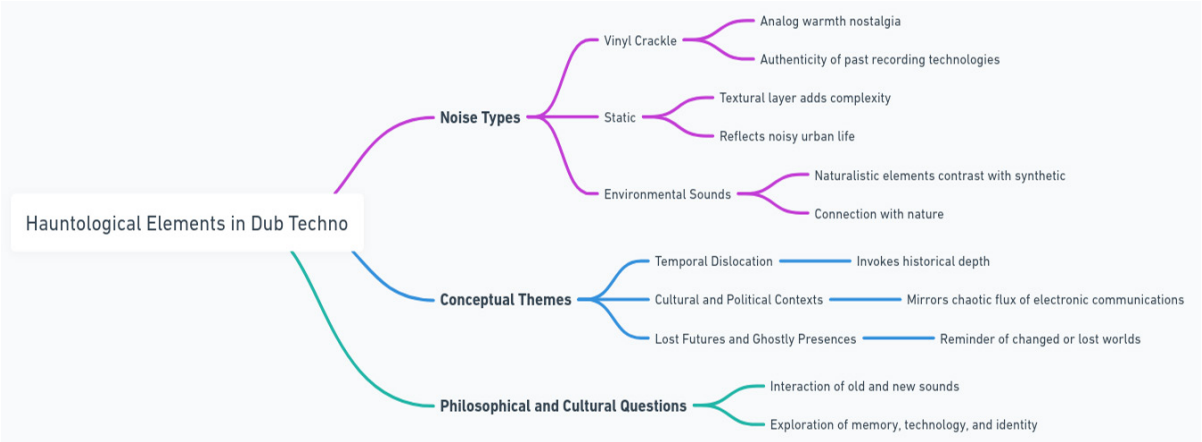

Figure 2. Hauntological elements in dub techno.

On the other hand, the resonance of noise within the realm of electronic music production can be attributed, at a surface level, to a fascination with analog technology.[7] Yet, delving into the finer nuances of its role as a stylistic element within dub techno, sound reveals a more intricate narrative that extends beyond a mere affinity for analog technology. As previously expounded, Oswald's assertion that the initial instances of noisy dub techno were a consequence of analog hardware utilization sets the groundwork for Fisher's hauntological concept within the music domain. This trend of analog technology fascination in contemporary music production can be comprehended through the lens of hauntology, particularly in contrast to the imprints of earlier recording methods juxtaposed with the timeless anonymity conferred by digital technology (Coverley 2021: 12).

Fisher advances the notion that the advent of internet technology intensified the desire to emulate the auditory attributes of bygone eras characterized by analog equipment. The establishment of an ever-expanding archive of past recordings, easily accessible through this technological evolution, rekindled the prominence of hauntology. Within this framework, Fisher envisions an "atemporal" contemporary era, in which the past's presence is not relegated to oblivion but rather assumes a "technological uncanny" demeanor (Coverley 2021: 12).

The digital realm, particularly the cyber expanse, has ushered in an era where the ever-growing repository of historical recordings is instantaneously within reach, inundating the present with a ceaseless flow of records from the past. Fisher's contention is that this technological revolution of the early 21st century catalyzed the resurgence of hauntology, manifesting as a cultural and political reaction to the temporal indistinctness of a present moment where the past no longer undergoes oblivion (Coverley 2021: 12).

The pervasiveness of nostalgia across diverse artistic spheres has convoluted the essence of the concept itself. The resurgence of retro tendencies breathes life into specters of the past, engendering a phenomenon known as post-nostalgia, a phenomenon that can bind the present within the historical confines.

Approaching dub techno from a hauntological vantage point introduces a sense of skepticism toward the role and significance of noise. Within the context of the dub techno soundscape, noise manifests in distinct forms: static, vinyl crackle and soundscape. The presence of static noise, even in contemporary tracks where analog hardware noise is virtually absent, implies an intentional embrace of noise as a stylistic component. Similarly, vinyl crackle, despite its erstwhile association with undesirability, asserts its role within the dub techno sonic architecture. Moreover, the incorporation of diverse noise elements, ranging from urban and rural environments to natural soundscapes, contributes to a pronounced drone-like quality within many dub techno tracks. The multifaceted relationship between dub techno and noise thus becomes apparent.

In electronic music's domain, sampling practices wield a distinct allure, often overshadowing the deliberate inclusion of noise. While dub techno's sampling practices evoke the "Clicks and Cuts" aesthetic, electronic music genres founded entirely on sampling, such as vaporwave, encapsulate a political manifestation quality aligned with hauntology. Thus, while sampling practices find resonance within dub techno, this discussion refrains from delving into the domain of sampling practices.

In summation, the incorporation of noise within the sonic tapestry of dub techno serves to invoke sensory echoes of the past. Concurrently, the perpetuation of dub echo and reverb techniques, as preserved by the "creative engineers" in Kingston, Jamaica during the 1960s, remains largely unchanged in parametric design, thereby imbuing contemporary dub techno recordings with echoes from history (Vendryes 2015: 12). The replication of hardware-induced noise from the early stages of dub techno, through sampling and digital tools, underscores the persistence of the past within the present. Through a hauntological

lens, the phase of post-nostalgia foreseen by Fisher becomes palpable, as the technological limitations of the past endure within the realm of modern technology. While the specific influence of neoliberalism or post-capitalism in this sphere lies beyond the scope of this exploration, Derrida's construct and Fisher's concept of "technological uncanny" illuminate the discourse (Coverley 2021: 12). While noise emerges as an alluring aesthetic element for dub techno producers, a hauntological perspective invites contemplation regarding the cyclical repetition of Oswald and Ernestus's pioneering dub techno creation for almost four decades, indicative of an absence of new artistic paradigms.

In the realm of electronic music, hauntology encapsulates the manifold ways through which the past is reconfigured, echoing through the sonic texture, structure and medium of the genre itself. Scrutinizing the dub techno discography elucidates how the static noise generated by archaic hardware continues to haunt the modern-day manifestation of dub techno.

The Technicalities of A Spectral Aesthetics

In Figure 1 above, each track exemplifies the integration of noise into the structure of dub techno through diverse techniques and stylistic intentions. In certain tracks, noise is employed as a primary element, either sampled or transformed into a musical component via resonators. In others, it is designed to function more subtly, creating an atmospheric backdrop or backcloth. There are also instances where noise is utilized to achieve percussive effects, construct melodic phrases and harmonic patterns and to serve as a drone element resonating at a fixed pitch.[8] The methods of employing noise extend beyond the aforementioned approaches. Nonetheless, stylistic similarities can be observed among some of the tracks listed in Figure 1. The exploration of these nuances is left to the discerning reader, as it is evident that analyzing all the tracks mentioned in Figure 1 would constitute the subject of a more comprehensive study, which itself would encounter significant limitations.

Therefore, this section of the study aims to provide an example of how noise becomes an indispensable component of sound aesthetics in the dub techno production process through a brief analysis of two distinct examples. The A-side "Rondell Eins" from Pole's 2000 album *Rondell* and the final track "Urban Wind" from Martin Schulte's 2011 album *Urban Spirit* are selected as the two subjects for this analysis. In these tracks, noise is integrated into the sound using fundamentally different techniques and with entirely different intentions, transforming it into an aesthetic element. The process of noise becoming aestheticized in the context of hauntology as a spectre renders these two tracks significant examples (Figure 3).

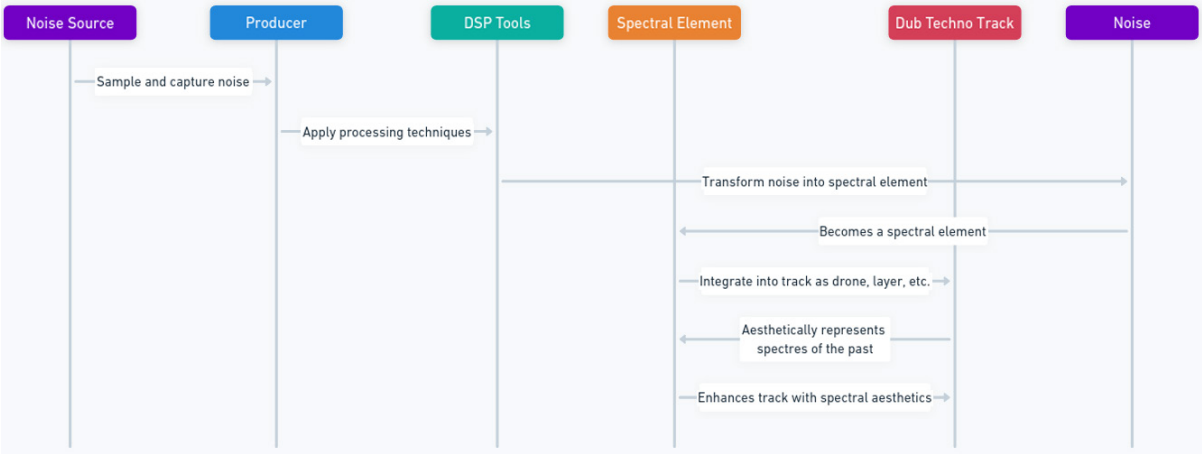

FIGURE 3. THE TRANSFORMATION OF NOISE INTO A SPECTRAL ELEMENT.[9]

"RONDELL EINS" BY POLE

The track commences with a warm hiss. While speculative assessments can be made regarding the unprocessed state of this sound, it would be misleading to draw definitive conclusions about its source. Nonetheless, it is plausible to infer that the processing chain applied to the noise channel likely includes 1/8 or 1/16 quantization, a compressor that narrows the dynamic range and accentuates the texture and a sequence of filtering processes, probably involving equalization (EQ) and additional reverberation effects. Furthermore, advanced techniques such as granular synthesis or micro-sampling may also be incorporated into the processing workflow.

These processes can be posited to serve two primary objectives within the dub techno genre: first, to render tonal or transient-based grooves or note values perceptible; and second, to musicalize the noise within the dub techno aesthetic framework.

The QR codes below, which direct to auditory material, provide an illustration of a noise layer generated by applying similar processing techniques to a sampled one measure of vinyl recording from Chopin's *Piano Sonata No 2* released in 1964 by Vox Label (Figure 4). An A/B comparison example has been created, with "A" representing the pre-processed state and "B" representing the post-processed state, to elucidate the transformation process.

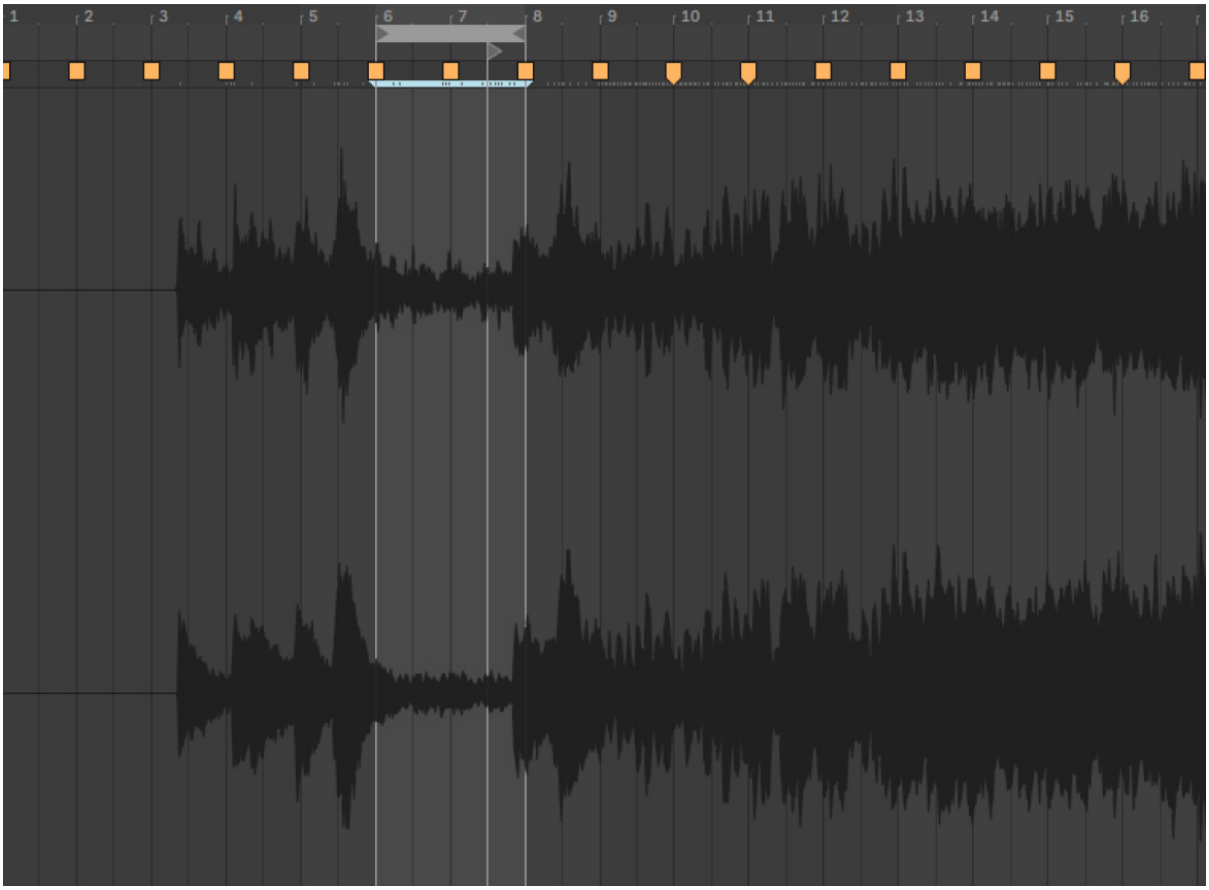

Figure 4. Sampled, looped and processed measure.

Figure 5. Unprocessed noise (A).

Figure 6. Processed noise (B).

In the audio processing workflow followed to transform sound A into sound B, the sample was first looped using Ableton Live 12. After being quantized to 1/16, an EQ was applied to enhance the low frequencies and obscure the tonal center. Subsequently, a gated delay was used to produce a rhythmic narrative, along with a reverb send and an echo send set to L 1/8 and R 1/16. The processes were limited to these steps, and a kick drum was added to achieve a four-on-the-floor effect (Figure 7).

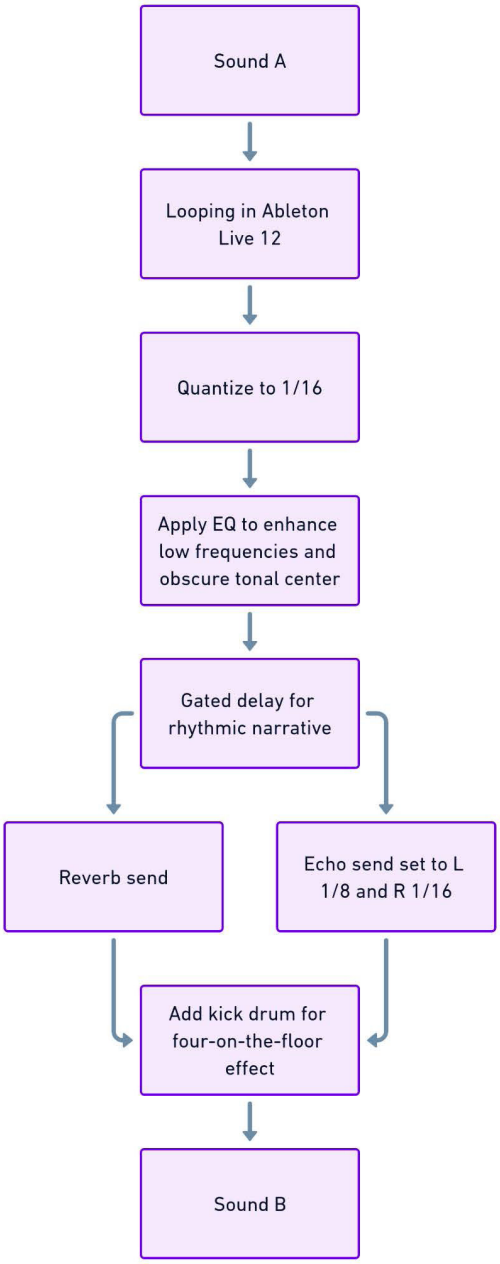

FIGURE 7. VISUAL REPRESENTATION OF THE AUDIO PROCESSING WORKFLOW.

In "Rondell Eins", the evolving hiss, modulated by various effects throughout the track, functions as a fundamental layer that creates a robust textural presence and serves as a compositional element facilitating transitions between sections. This noise element, audible from the initial seconds of the track, could plausibly originate from a vinyl crackle or might be generated in real-time by hardware or software rather than being sample-based.[10] The critical aspect lies not in the source of the noise but in its evocation of malfunction. Within the domain of music production, malfunction sounds, typically considered undesirable, are embraced and aestheticized in "Rondell Eins", almost serving as a foundational compositional element.

At the 00:36 mark, a brief string section implies that these noise elements could have been extracted from an actual vinyl record. Furthermore, after 06:00, the noise passes through a new processor simulating malfunction, producing a sharp digital glitch effect.[11] The track resolves around 06:49 with audible string sounds, completing the past's evocation. These instances signify an homage to, deconstruction of and re-aestheticization of unwanted sounds produced by past equipment's inadequacies, integrating them into the music's structure. This treatment of noise in the track epitomizes the spectral aesthetics discussed in this research.

The use of noise and malfunction sounds in "Rondell Eins" aligns with the principles of hauntology, which refers to the persistence of elements from the past that linger in the present, creating a spectral presence. The hiss and glitch elements serve as auditory specters, invoking the era of vinyl records and the imperfections of early recording technology. These sounds are not merely nostalgic references; they are actively recontextualized within the track, transforming their historical associations into a new aesthetic form. This process of re-aestheticization aligns with the hauntological notion of the past haunting the present, as the noise elements evoke memories of older media while simultaneously being reshaped by contemporary production techniques.

The integration of malfunction sounds, such as the digital glitch effect introduced after 06:00, further emphasizes the hauntological theme. Glitches, which are typically seen as errors or faults in digital media, are repurposed in "Rondell Eins". This repurposing challenges traditional notions of what constitutes musicality and highlights the creative potential of noise and error in electronic music. The interplay between past and present, error and intention, underscores the track's spectral aesthetic.

"Urban Wind" by Martin Schulte

Compared to the previously examined and discussed track, "Urban Wind" opens with a harsher malfunctioning crackle. This crackle sound crescendos over two measures, creating a pulse. All the subsequently added progressive elements shape themselves around this pulse. A groove is captured at the climax, where the bassline and other elements reach their peak, and the structure of the track's narrative becomes established. The occasionally used found sound noise and tonal musical elements, due to the reverberant sounding mix, almost depict a metro station, an underpass atmosphere or some liminal metropolitan area. The aforementioned malfunctioning crackle and all other added sounds, while potentially being classified as noise in their own contexts, gain a musical identity within the structure of "Urban Wind".

This situation merits examination from a hauntological perspective. In this example, a simple noise is transferred from one context (the malfunctioning real) to another (the artistic groovy pattern). This transformation alters all the political, cultural, structural and contextual origins carried by the sampled noise. In other words, the unwanted noise in its original context continues to exist as a desired spectre within the structure of "Urban Wind".

The following figures exhibit a sound design approach similar to that used in "Urban Wind": the process of sampling and decontextualizing the noise to achieve a certain dynamic through filter, amplitude or frequency modulations, and reinforcing this dynamic with resonators around the tonal center that the noise element naturally carries (Figure 10). Additionally, granular synthesis (Figure 11) is employed to experimentally process the noise. The processed noise is then used as a backcloth to provide the dub techno atmosphere. This process is exemplified in the A/B comparison below.

FIGURE 8. UNPROCESSED NOISE (A).

FIGURE 9. PROCESSED NOISE (B).

FIGURE 10. TONAL CENTER REINFORCEMENT.[12]

Figure 11. Granular synthesis processing.[13]

The primary distinction between "Urban Wind" and "Rondell Eins" lies in their respective approaches to incorporating noise and malfunction sounds within the dub techno framework. Both tracks utilize noise as a central element, yet they employ distinct methods and aesthetic strategies. "Rondell Eins" features a warm hiss and digital glitch effects, which are employed to evoke a sense of spectral presence and hauntological aesthetics. The evolving hiss in "Rondell Eins" functions as a foundational layer, facilitating transitions and emphasizing the textural presence of noise. This noise is often processed to simulate malfunctions and digital errors, embracing the imperfections of early recording technology. These sounds are integrated into the composition to reflect on the past while recontextualizing them within a contemporary production framework.

Conversely, "Urban Wind" begins with a more abrasive malfunctioning crackle that crescendos to establish a pulse, around which all progressive elements are structured. This pulse serves as the driving force of the track's narrative, with found sound noises and tonal elements creating an atmosphere reminiscent of a liminal urban area. The noise elements in "Urban Wind", although potentially classified as noise in other contexts, are transformed into a musical identity within the track. This transformation underscores the creative potential of decontextualizing and re-aestheticizing unwanted noise, rendering it a desired spectre within the composition.

These divergent approaches to integrating noise not only illustrate different aesthetic and production techniques but also reflect the broader thematic concerns of hauntology, wherein elements of the past continually influence and shape the present. It is important to recognize that these are merely two examples among many; there are numerous possible approaches, both unlocked and yet to be discovered. The critical point is that dub techno inherently embraces noise as an element—in this case, a spectral one.

Noise, Hauntology and the Sonic Identity of Dub Techno

In dub techno, noise transcends mere background sound to become a fundamental component of the genre's aesthetic and philosophical depth. This style, characterized by its intricate layering of sounds, utilizes noise not only to challenge auditory norms but also to express complex emotional and conceptual nuances. Such integration of static noises and found sounds within dub techno is a deliberate, alchemical process, transforming raw auditory elements into transcendent musical compositions that defy traditional categorization.

This approach to noise within dub techno aligns closely with the concept of hauntology. Coined by Jacques Derrida, hauntology explores the phenomenon of the past persisting within the present, creating a sense of temporal dissonance and spectral presence that influences contemporary experience. In dub techno, noise acts as a medium through which these spectral presences are invoked, allowing historical sounds and styles to permeate modern compositions and reflect the genre's rich historical lineage.

The roots of dub techno extend beyond its recognized pioneers, Moritz von Oswald and Mark Ernestus, reaching back to reggae and the innovative mixing techniques of dub music, which include live improvisation and the strategic use of delays. These influences are embedded within dub techno's minimalist and atmospheric structure, combining the ambient sounds of urban and electronic landscapes with traditional dub elements to evoke a futuristic yet nostalgic ambiance.

In this context, noise is more than an incidental byproduct of sound production; it is an essential element of dub techno's identity. This perspective challenges conventional views of noise as an imperfection or unwanted sound. Instead, noise in dub techno is celebrated as a critical ingredient that adds depth, texture and historical resonance to the music. Such utilization reflects the hauntological ethos, where the past's echoes are not merely remnants but active participants in shaping contemporary soundscapes.

Mark Fisher's hauntological framework is particularly relevant in understanding dub techno's fascination with analog technology and historical recording techniques. In the digital age, the vast archives of past recordings contribute to an atemporal present, where history is constantly accessible and can be recontextualized within new musical formats. Dub techno exemplifies this through its use of analog sounds, vinyl crackles and environmental noises that draw direct lines to past musical forms, thus embodying hauntological principles.

However, employing hauntology as a lens to view dub techno also invites critical perspectives on the role of noise in the genre. One might question whether the persistent use of traditional techniques and noises hinders the potential for truly innovative musical narratives. In this view, noise in dub techno is not just a disruptor but a symbol of hauntological presence—a tangible manifestation of historical influences that continue to resonate within the modern auditory landscape.

Ultimately, the integration of noise in dub techno can be seen as a creative reconciliation with the temporal dissonances highlighted by hauntology. It allows the past to echo into

the present, enriching the music with layers of meaning and depth. This synthesis of noise and hauntology in dub techno not only enhances the genre's musical complexity but also deepens its philosophical inquiry into how we perceive and interact with sound, history and memory. This philosophical exploration underscores dub techno as not merely a musical style but as a profound commentary on the interplay between time, technology and cultural expression.

Conclusion

Framed within the hauntological perspective, noise becomes an agent of temporal resonance. The hauntology concept, championed by Jacques Derrida and expounded upon by Mark Fisher, illuminates the pervasive influence of the past upon the present. This framework is particularly pertinent in the context of dub techno, where the persistent presence of noise resonates with the notion of specters infiltrating contemporary discourse. The ever-expanding digital archive and the emergence of atemporal musical landscapes are emblematic of the hauntological specters that Fisher envisioned.

Noise within dub techno serves as a conduit through which the past reverberates into the present. Elements such as static, vinyl crackle and immersive soundscapes in dub techno tracks evoke sensory memories and temporal dislocations, creating a rich auditory experience. The intentional replication of hardware-induced noise, despite technological advancements, reaffirms the genre's homage to its historical roots. This hauntological dialogue highlights the cyclical nature of artistic paradigms and invites reflection on the future trajectory of dub techno.

Examining noise, hauntology and dub techno reveals a vivid tapestry of sonic resonances and temporal echoes. The symbiotic relationship between noise and hauntology uncovers a path for exploring the genre's philosophical foundations, illustrating how noise transcends mere auditory presence to become a portal through which the past reverberates into the present. As dub techno's reverberations continue to influence various genres and eras, the exploration of noise and hauntology within its realm encourages contemplation of the boundless dimensions of sound, memory and the ever-evolving narrative of music itself.

Notes

1 Lloyd "Bullwackie" Barnes was a seminal figure in Jamaican dub music. His innovative sound engineering and production techniques significantly shaped the genre. While often underrecognized, his contributions were pivotal in defining dub's sonic characteristics. Barnes' pioneering use of sound manipulation and emphasis on rhythm and bass were foundational to the genre's development, and his sound formula subsequently impacted the aesthetics of dub techno.

2 In this context, "noise" encompasses a range of sonic elements, such as hisses, static, crackles and other non-musical sounds that are intentionally incorporated into the music (see Figure 1).

3 For further exploration of the transformation from communal to individualized listening within dub techno, see Koçer's (2023) "Dub Techno As Orphic Experience: Auditory Aesthetics, Spatiality, And Sound".

4 Dub techno amalgamates core elements of dub and techno to form a distinct sonic identity. Its rhythmic foundation, characterized by a four-on-the-floor beat and minimalist structure, aligns with techno conventions. Conversely, dub's influence is evident in the genre's emphasis on atmosphere, spatialization, and echo. While dub techno shares rhythmic and aesthetic elements with its parent genres, its unique synthesis of these components creates a distinctive sonic space. Differentiating features include a focus on introspection and the intentional use of echo and reverb to build depth and immersion.

5 As delineated by Miller in his work *Spectres of Marx*, Derrida encapsulates Marx within the recognition that he grappled with the persistent presence of spectral manifestations from both the future and the past (2015: 9). Derrida strategically employs the notion of hauntology as a conceptual tool to engender a dichotomy between Marx's ontological perspective and historical materialism. Within this literary work, the concept of hauntology serves as a vehicle for generating a discernible cleavage amidst the confines of closed conceptual frameworks, exemplified by elements like class conflicts in Marx's ontological framework (Miller 2015: 5). The impetus that initially propelled the emergence of the term "hauntology" can be traced back to Derrida's critical scrutiny of Marx's ideas; subsequently, this term transcended its original context due to the influence exerted by figures such as Mark Fisher and Simon Reynolds. In this discourse, the discourse of "hauntology in music" takes root, initially adopting the definition outlined by Mark Fisher. Within this context, the conceptual scaffolding furnished by Fisher in his analysis of the "failure of future" assumes a pivotal role (2012: 16). This framework specifically addresses the dearth of forward-looking tendencies, the prevalence of stagnated retro-futurism in creative endeavors of the post-millennium era.

6 The 50 tracks were carefully selected based on specific criteria, including those classified under the "dub techno" label or closely associated with it. Tracks with stylistic attributes synonymous with the genre were included, enhancing the dataset's representation. The chosen tracks underwent rigorous scrutiny through spectrum analysis, allowing for a detailed examination of sonic components. The current compilation consists of 50 tracks, but future expansion could reveal new facets of noise's interplay within the dub techno structure. The timeline from 1994 to 2022 encapsulates the genre's evolution, with three distinct categories of noise: static, vinyl crackle and found sound. These noise types highlight the multifaceted nature of noise's integration within the sonic architecture of dub techno compositions. The collection aims to exemplify the pervasive deployment of noise as a structural motif within the dub techno paradigm.

7 Interestingly, a notable trend in contemporary music production involves the creation of software plug-ins explicitly designed to emulate the sonic attributes of analog hardware, utilizing digital technology. A prime example is the TAIP plug-in by Baby Audio, PSP Vintage Warmer by PSP Audioware, Console & Tape Machine Emulation by Overloud Tapedesk and J37 Tape by Waves. These tools aim to replicate the unique character of analog sound despite digital origins. As evidence of this inclination, a blog post dedicated to evaluating such plug-ins, offered a thought-provoking query. "Digital recording technology offers myriad benefits over an all-analog studio, but you still can't beat the sonic supremacy of recording

sounds directly to tape—or can you?" (Sweetwater 2022). This inquiry underscores that the notion that crystal-clear sonic perfection might not necessarily equate to auditory satisfaction resonates beyond the confines of dub techno culture, permeating the production realm of a diverse array of musical genres.

8 In Figure 1, each track exemplifies the integration of noise into the structure of dub techno through diverse techniques and stylistic intentions. For instance, Susumu Yokota's "Kinoko" prominently features forest sounds as a primary sonic element, transforming environmental noise into a central musical component. In contrast, burger/ink's "Elvism" employs static as a subtle backdrop, creating an atmospheric foundation for the track. Noise can also be utilized in more intricate ways. Pole's "Rondell Eins" incorporates static to construct percussive elements, while Rhythm & Sound's "Carrier" deploys static as a drone, providing a sustained tonal center. Furthermore, Martin Schulte's "Urban Wind" exemplifies the use of vinyl crackle as a melodic element, shaping the track's harmonic progression.

9 The sequence map illustrates the process of incorporating noise into dub techno tracks. It begins with the sampling and capturing of noise by the producer, who then utilizes Digital Signal Processing (DSP) tools to apply various processing techniques. This processed noise is transformed into a spectral element, which can be integrated into the track as a drone, layer, or other musical component. This integration aesthetically represents the spectres of the past, enhancing the track with spectral aesthetics and contributing to the overall texture and depth of the dub techno composition.

10 Consequently, the noise in Figure 1 is classified as "static".

11 It is worth noting that a variety of plug-ins specifically designed to emulate digital sound malfunctions, such as Glitch 2 by Illformed, Digitalis by Aberrant DSP, I Wish by Polyverse, and Stutter Edit 2 Glitch VST by Izotope, are widely used in contemporary music production.

12 This image illustrates the use of resonators and an auto filter in the sound design process to reinforce the tonal center and modulate the frequency of the sampled noise. The resonators module is configured to enhance specific tonal characteristics of the noise. The filter is set to 5.57 kHz with a decay rate of 72.2. Different pitch settings are applied to each resonator to create a harmonic instance (in this case D#aug chord), with specific decibel adjustments to balance the output. The dry/wet mix is set to 33%, blending the resonated sound with the original noise. The auto filter is used to further shape the noise by applying a high-pass filter centered at 1.43 kHz with a resonance of 25.2. The filter's envelope settings include an attack time of 0.00 ms and a release time of 200 ms. The drive is set to 4.00 dB to add slight distortion, enhancing the texture of the noise. Quantize settings allow for precise control over the filter's modulation, and an LFO is used to introduce subtle variations in the filter frequency, amount and shape.

13 The speed and grid size parameters are adjusted to capture and synchronize the grains of the sampled noise, ensuring a coherent texture. The density and size parameters, along with pitch adjustments, create varied and dynamic textures, with randomization settings introducing subtle variations. The grain shape is set to a triangle, and the grain direction is manipulated to control the movement and flow of the grains, adding depth and complexity. Additional parameters, such as feedback, grain volume and random panning further process the noise, creating a rich, evolving soundscape.

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