Memware

Life Stories as Medium and Meaning

In the Rehumanization of AI-Generated Music

By

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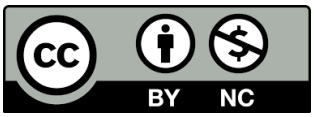
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DISSERTATION ABSTRACT

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Doctor of Philosophy in Communication and Media Studies

Title: Memware: Life Stories as Medium and Meaning in the Rehumanization of AI-Generated Music

Memware: Life Stories as Medium and Meaning In the Rehumanization of AI-Generated Music investigates the ethical, aesthetic, and existential ramifications of art generated through artificial intelligence models. Specifically, it is an inquiry into the possibilities of recuperating AI-generated music in an attempt to rehumanize it. By understanding the ethical dilemma posed by AI-generated music as it compares to anthropogenic music which samples anthropogenic music, and by conducting experiments which reintroduce many of the techniques, aesthetics, and ethics of music sampling to AI-generated musical samples, this dissertations asks whether we may collaborate with

this emerging technology. These experiments expose the spiritual and emotional effects of AI/human collaboration, the ethical dilemmas posed and whether they can be ameliorated or eradicated altogether, and what creative possibilities our current technological moment might afford us.

A key finding in *Memware* is that we are unable to rely on any discernable sonic qualities in a piece of music to determine to what level, if any, that piece incorporates generative AI. As the quality (timbral, stylistic, compositional, etc.) of AI-generated music improves, we become agnostic to any piece of music's origin. All that remains of the certainty of a piece of music's humanity, then, lies outside of the artifact itself. It lies in human memoir. Our own recollections of our pasts, and the way we frame them for ourselves, become the medium through which music passes. Memoir is the only remaining strictly human medium: *memware*.

Using both autoethnographic and practice-as-research methods, I access my own memoirs as human components of the music I make——both in and not in collaboration with generative AI. By sampling AI-generated music and remediating it through physical media, I attempt to rehumanize it, only to realize that my remediation efforts, while they first seemed to only be the introduction of noise, are actually always the introduction of memoir.

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A memoir is incomplete without other people.
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I love you buddy.

-Dad

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Chapter I

The Pickup Note

The three research questions I propose here investigate AI-generated music's threats to music sampling's dialogic function. In order to introduce these questions, it is important to briefly define the shorthand I will be using to show the flow of music sampling:

1. Human→human music sampling: A human artist directly samples recorded music created by historical humans.
2. Human→AI sampling: AI samples recorded music created by historical humans via a data set.
3. AI→human sampling: A human artist samples music generated by an AI-music generator.

It is important that I initially address the disruption of ethical processes caused by generative AI music.

RQ 1: How do the ethics and nature of human→human music sampling apply to and inform us about the ethics of human→AI sampling sampling?

This question will require me to answer two sub questions:

1. What are the cultural and aesthetic ethics of human→human sampling?
2. What are the cultural and aesthetic ethics of human→AI sampling?

I define the cultural ethics of sampling here not as a fixed concept. There is no singular ethical code. There is, however, the ability or inability to negotiate and analyze the ethics of each instance of sampling. In other words, it is inherently unethical to be prevented, incidentally or intentionally, from evaluating the ethics of each relationship between artists in a music-sampling relationship or dialogue.

Examining aesthetic ethics requires understanding both incidental and intentional uses of sonic qualities to index a piece within a cultural tradition. This dissertation specifically examines the limitations of hardware and physical media, which signal to the listener that a piece is either contemporaneous with the initial release of that hardware and media or that it is referring to them retroactively. I examine whether these aesthetic decisions recuperate AI-generated music by indexing them within an aesthetic tradition, thereby reintroducing them to broader ethical conversations, or whether they simply mask AI-generated music's suspected lack of aesthetic dialogue.

Hypotheses:

H 1: When human artists sample other human artists, they enter into an artistic and cultural dialogue with the original artists. The ethical implications of these dialogues are to be negotiated on a case-by-case basis.

H 2: When AI samples human artists through a data set, this artistic and cultural dialogue is broken because AI music generators have no artistic or cultural identity.

RQ 2: Does the process of AI→human sampling (i.e., humans generating samples to use in their own music) restore some of the dialogic nature and humanity in the music and establish a new ethics?

Hypothesis:

H 3: Even though the original genealogical chain from original recording artist to sample-based musician is broken, the reintroduction of spontaneous, serendipitous human creativity reinfuses AI-generated music with some aura of musical humanity.

RQ 3: What creative and cultural elements can human artists introduce that makes AI→human sampling feel more dialogic, cultural, and human?

Hypothesis:

H 4: The addition of live instrumentation, human voice, and mistakes (in timing, pitch, production, etc.) resituates new music made from AI-generated samples within the tradition of human-generated music.

Chapter II

Noisy Memoirs

Memory is identity. I have believed this since—oh, since I can remember. You are what you have done; what you have done is in your memory; what you remember defines who you are; when you forget your life you cease to be, even before your death.

—— Julian Barnes, *Nothing to be Frightened Of*, 2008

Noise, in its many forms, is a productive medium that introduces new meaning. As Michel Serres writes, "Mistakes, wavy lines, confusion, obscurity are part of knowledge; noise is part of communication, part of the house." (1982) This noise, however, can never exist outside of a life's story. Memoir not only gives noise context, but it becomes the very means by which we arrive at it. The intra-action between memoir and noise are fixed. Noise is always relational, and "human-computer definitions of noise must also include social parameters and become more complex, inevitably negotiating questions of context, perception and aesthetics." (Menkman, 2011) Noise of any kind is always an expression of the noise of memoir,

therefore memoir is the operative subject. The interpretive, material, and motivational medium of memoir is the source of all noise.

The inspiration to introduce or operationalize noise is birthed by memoir. The acquisition of the materials necessary for the intentional (or even inadvertent) introduction of noise is one link of a chain of events along a memoir. Even truly accidental noise is reliant on and derives much of its meaning from memoir. The design choices that go into producing a Fairlight CMI or a MacBook, for instance, are the products of a designer's memoir. The manufacture of microchips, decisions about which materials to use, etc., are all informed by and intertwined with an engineer's memoir. Our relationship with those objects——why we choose them, how we feel about them, what their use means to us and those who regard us——is tied to our memoirs.

I felt that the introduction of noise would save me from an unknown wrongness with AI. But it wasn't noise qua noise that had redemptive power. It was always noise qua memoir. The noise I introduced was always an expression of my own life's story——the details of which are termini of others'

stories, beginnings of others' stories, and countless stops along the way. I was not interested in making this music believable as anthropogenic music. I was trying to rescue it from placelessness, formlessness, storylessness. What I found, however, was that my role as a human (the thing I was seeking to begin with) was only as an agent which introduced noise, which is always an introduction of story.

When, therefore, I look to answer the question 'in what ways might one recuperate AI-generated art and rehumanize it?' my answer must necessarily be: to dither its lack of memoir with an overabundance of one's own. What, in the final product, is essentially human then? Only memoir.

-May 2nd and 3rd, 2026

I rely on the word *memoir* to say what I mean, as *autobiography* does not connote the kind of phenomenon that facilitates noise and is, itself, a medium. Autobiography is an attempted factual retelling of one's own life, and this attempt at an empirically sound record of a life's events lacks the interpretive, emotional, and spiritual elements of memoir. Autobiography also carries with it the risk of depicting the author as a solitary, unified agent, unaffected by intersecting

life narratives (Couser, 2012; Smith & Watson, 2001). Memoir relies on relationships rather than the myth of the author's complete autonomy (Zinsser, 1987).

Memoir is a subjective narrative of an interconnected series of moments presented in terms of their relationships with other moments, lives, objects, places, etc. (Zinsser, 1987). "So the point of my keeping a notebook has never been, nor is it now, to have an accurate factual record of what I have been doing or thinking," says Joan Didion. "*How it felt to me*: that is getting closer to the truth about a notebook." (1966) As I work through the primacy of memoir as medium, and how artificial intelligence is devoid of memoir, I will present my own stories. They are stories as I remember them (or, perhaps, as I choose to remember them) and how they felt to me. I envision them as waypoints along an interconnected and infinitely recursive signal path.

Chapter III

The Dialogic

> *As a living, socio-ideological concrete thing, as heteroglot opinion, language, for the individual consciousness, lies on the borderline between oneself and the other. The word in language is half someone else's. It becomes one's "own" only when the speaker populates it with his own intentions, his own accent, when he appropriates the word, adapting it to his own semantic and expressive intention.*
>
> —— M. M. Bakhtin, *The Dialogic Imagination*, 1981

In this dissertation, I explore the ethics and aesthetics of sample-based music and how traditional human-to-human sampling differs from human-to-AI sampling. I feel justified in calling upon a literary theorist like Bakhtin (an old hero of mine) when talking about 21st-century music production technology and culture because these musical practices are just as dialogic as language (Agawu, 2014). And Bakhtin himself seems to welcome a repurposing, or "re-accentuation" of his ideas, saying, "[t]he dialogic orientation of discourse is a phenomenon that is, of course, a property of any discourse" (Bakhtin, 1981). So I will sample Bakhtin and keep his heteroglossia at

the front of my mind while I explore the depths of the dialogic found in the history of music sampling, the discursive rupture that happens through AI data set sampling, and an imagined future that might reinstate or recuperate the dialogic.

I will discuss my own experiences with and thoughts on music sampling and AI-generated music by employing memoir. By examining the interconnectedness of my own experiences, I will trace the profound influence of relationships (between myself and my past/people I have met/objects I have used and/or acquired/art that has inspired me). These relationships——primary, secondary, tertiary, imagined, or tangential——are what make the process of sampling transcendent to me. Right at Bakhtin's borderline between me and the other, I have found new meanings. Sampling is a hyper-active consumption of auditory media (Katz, 2004). As Eduardo Navas says, sample-based artists, take "prerecorded material produced for listening, and [turn] it into active Music" (Navas, 2012). It is only natural, then, that *this* document describes the dialogic relationships that sampling fosters.

This is the pure experience I feel when sampling. I feel something when I listen to the sounds that someone else has made. I feel something when I hear how they wrote their song, how they performed it. I can hear the decisions that the

recording and mixing engineers made. Some eras and some regions had microphones and hardware unique to them, and the sonic qualities (attenuated high-end frequencies, distorted drums, etc.) indicate (either factually or falsely/semiologically) when and how these pieces were made. But the relationship is not purely an exercise in close, informed listening. And it is not only a phenomenological, emotional one, either. As someone who samples music, the most important relationship to me is the dialogue this music and music-making process engage in with other people.

The kind of artistic time travel that allows a modern-day beatmaker to become a collaborator on a decades-old recording suggests a relational, atemporal, deferred process of meaning-making. As Derrida says, "The history of the work is not only in its *past*, the eve or the sleep in which it precedes itself." This is because "[i]t does not know where it is going, no knowledge can keep it from the essential precipitation towards the meaning that it constitutes and that is, primarily, its future" (Derrida, 1978). In this way, the life, identity, and meaning of a recording is always being made. It is made by its relationship with the sampling artist, and it is made by that artist's relationship with their own memoir.

Recordings are in dialogue with their hyper-active (i.e., sampling) listeners. They produce for these listeners what

Barthes might call a more *writerly* text——that is to say, a (musical) text upon which sample-based artists can write vastly new meanings informed by their life's stories. These new meanings and the details of the recordings used to create them evade purely hermeneutic readings. They also require readings of materiality (e.g., recording equipment, medium, instruments, etc.), expertise, positionality, and the passage of time. Barthes says of literature that, "[t]he goal of literary work…is to make the reader no longer a consumer, but a producer of the text" (Barthes, 1974), and this seems to certainly be true of music for both the sampling and non-sampling consumer.

For the sample-based artist, there is a kind of "deferred reciprocity between reading [listening] and writing [sampling]" (Derrida, 1978), and this reciprocity establishes a living dialogue, spanning decades and genres and nations and cultures. The ethics of these living dialogues as they apply to cultural relationships, creative labor, artistic traditions, and racial tensions are all negotiated and navigated *through the dialogues themselves*. That is to say, the historical and traceable presence of an original recording artist and the historical and traceable presence of the artist who samples that original artist allows for the relationship to be examined because we can know who the actors are. Actor-network theory supports the idea

that traceability allows us to demystify these ethical questions by understanding social traceability (Latour, 2005).

Is it ethical for artist B to sample from artist A? To make money by sampling artist A's music without compensation? Is there a cultural or racial concern with artist B sampling artist A? These questions are answerable only through the presence of a dialogue——only because we know who the artists are.

Chapter IV

Literature Review

The advent of generative AI music platforms, particularly those that run on Large Language Models (LLMs), disrupt the dialogic nature of sampling. Platforms like Suno and Udio (released in 2024 and 2023 respectively) create unique musical recordings based on text inputs from users. The inputs are prompts for the platforms to use information scraped from massive music data sets looking for appropriate matches (Carlini et al., 2021). While the platforms keep their data sets and processes intentionally opaque, both platforms draw from previously recorded and typically copyrighted music (Carlini et al., 2021; Corcoran and Monroe, 2024; Landschoot, 2024; UMG Recordings, Inc. v. Suno, Inc., 2024; Weatherbed, 2024).

Dialogism in music sampling serves two functions, both of which are threatened by AI-generated music:

1. The above-mentioned ethical inquiry process. If we are unable to identify what we have called "artist A", we are unable to investigate whether sampling by artist B is ethical.
2. Its humanity. This second dialogic function of sampling that is threatened by AI is much more ephemeral but no less important. Sampling provides

> both the process of spatio-temporally disjunctive human connection (human→human music sampling) and is the process/product of new human connection (e.g., connection between artist B and a yet-unknown artist C, musical collaboration between musicians, connection between artists and listeners, etc.). Generative AI's disruption of these connections problematizes and threatens the human elements of sample-based music production.

It is important to establish at this point that I will not be addressing the legal issues with sampling directly. I will also not take as my subject the question of fair compensation for artists whose music is sampled. These are, of course, incredibly important topics, but I feel ill-suited to address them. There are legal scholars, ethicists, judges, and lawyers who have dedicated their lives to navigating the confusing and shifting waters of sampling, copyright laws, fair use, and sample clearance. I will leave these subjects to their respective experts. Oftentimes, sample-based music ethicists and artists feel satisfied with their ethical conclusions when these conclusions align with legal standards because "[i]n practice, copyright norms…which regulate the transformative use of music works, create space for sampling and remixing musicians to hone their own moral principles when differentiating between

legitimate and illegitimate creative practices" (Zahrádka, et al., 2025).

Sample-based musical products and practices deserve to be investigated, at least in the instance of this dissertation, through the same lens as non-sample-based music. As Behr, et al. (2017a) say, "To distinguish sampling from other musical practices risks tunnel vision by a tight focus…by concentrating on legal outcomes rather than the music itself". This is not a claim that it is possible to completely disentangle aesthetic and cultural ethics from legal ones; they are ultimately interrelated, and "[o]ne might, in fact, more accurately read 'ethics' as an ideological category which relates producers of artistic texts to means of production of those texts, as situated within a set of practices for production and reception" (Porcello, 1991).

A History of Power and Subversion

Music sampling techniques can be traced back to 1940s avant-garde electroacoustic artists such as Pierre Schaeffer, Halim El-Dabh, and Delia Derbyshire (Palombini, 1993). These artists recorded sounds onto magnetic tape (a relatively new technology in the 1940s) and played them back at different speeds, played more than one tape at the same time, and used other experimental technologies to create new soundscapes

(Derbyshire Interview, 1997). By taking recorded sounds of real-world objects (e.g., people talking, footsteps, etc.), electronic tone generators, and previously recorded musical samples and altering the way these recordings were played, early *musique concrète* artists were *bricoleurs* who pushed the limits of music-making beyond what had previously been heard (Broome, 2015; Derbyshire Interview, 1997; Lévi-Strauss, 2010; Palombini, 1993). They were afforded the ability to create these sounds while, at the same time, being limited by the available technology. British artist Delia Derbyshire, for instance, gained access to BBC's Radiophonic Lab and produced one of the first commercially successful pieces of sampled music: the original theme song to the television show *Doctor Who*. She was not credited for her work at the time (Derbyshire Interview, 1997).

Music-recording making is a technology that has been gatekept by those in power since the early twentieth century; cultural elites believed that this access threatened both high and "folk" culture (Brusila, Cloonan, & Ramstedt, 2021), while the Frankfort School saw mass cultural reproduction as an apparatus of capitalism (Horkheimer and Adorno, 2022). New media created by the proletariat, however, proved to be both subversive *and* capable of being recuperated by cultural elites (Chambers, 2021; Hebdige, 2012). In this way, "technology is

optimistically explained to increase the agency of the individuals to express themselves and reform older ideals and norms, and to use the media disseminated culture for resistive and subversive purposes" (Chambers, 2021). One pitfall of this optimism is that it conflates the concepts of *democratization of culture* and *cultural democratization*. The idea of the democratization of culture insists that everyone should have equal access to culture-making technology in order for each person to be able to create high art. This assumes that there is an artistic ideal determined by a cultural hegemony. Cultural democratization, on the other hand, involves each person deciding how and if they will use culture-making technology, thereby making not only the means, but also the ends, determined by the individual (Brusila, Cloonan, & Ramstedt, 2021). Attitudes about the proliferation of music-making technology cannot, however, stop it from making its way into people's hands. The Bronx in the 1970s saw both a continuation and a sharp break from the sampling techniques of Derbyshire's (and, of course, Pierre Schaeffer's and Pierre Henry's) *musique concrète*, and as these techniques moved from block parties to recording studios, and as hip hop started to see commercial success, it was swiftly recuperated by capitalists (Broome, 2015).

The advent of digital music sampling ushered in many new musicians. Whereas recording in the 1970s and 80s required expensive studio time, equipment, and expertise, digital sampling technology gave nearly everyone access to the means to make music recordings (Brusila, Cloonan, & Ramstedt, 2021).

> Digital technology has not only affected the accessibility of culture, but it has also changed the conditions for the production of culture. Although digital equipment and software often has been expensive and required special skills when it has been launched, it has usually become accessible for a fraction of the money soon after that. (Brusila, Cloonan, & Ramstedt, 2021)

Digital recording technology allows users to manipulate sounds in ways never before possible, and inexpensive digital audio workstations (DAWs) made these music-making processes available to the general public (Youngblood, 2019). A DAW is a piece of software that replaces nearly all of a physical recording studio. Users can——from their laptops, tablets, or smartphones——record live instruments, vocalists, and samples, trim and cut these recordings in a non-destructive process, mix the music (adjust volume and tone), and create

professional-quality digital audio files ready for distribution through audio streaming platforms.

The cultural democratization that digital recording technology afforded musicians "offered new opportunities for individuals and different population groups to create themselves, choose their modes of expression and increase their cultural autonomy" (Brusila, Cloonan, & Ramstedt, 2021). Musicians felt safe to explore and experiment with music making that did not necessarily conform to ideas of high art or commercially successful music (Eusterbrock, 2023). Access to this technology also establishes and strengthens communal bonds (Levstek and Banerjee, 2021; Youngblood, 2019). Online and in-person communities gather around shared musical culture and genre preferences (Levstek and Banerjee, 2021). The large presence of online tutorial communities that teach each other how to use software and hardware strengthens community while granting more musicians inexpensive or often free education about the technology (Brusila, 2021).

Sampling as a Pure Musicological Subject

The ethics of "borrowing" or "taking" in traditional (non-sampling) music is often a subject in and of itself, without centering the machinations of copyright law. This is because, among other reasons, the question of whether a work is

original is inherently unanswerable. “Courts have long struggled to discern between artists' original ideas and musical ideas that exist in the public domain and were created according to the dictates and practices of music theory, and the two are frequently confused and conflated” (Karina, 2022). It stands to reason that we can take a general musicological approach to analyzing copying in sample-based music because (especially after nearly 75 years of sample-based music) sample-based music is as much a part of today’s musical canon as any other kind of music.

As intellectual property lawyer Iyar Stav says, “The interface of law and music has always appeared unnatural. While the law aims to provide certainty and order, music is more often observed as a field which operates in a boundary-less sphere” (2014). This sphere provides artists with the ability to use borrowing or copying to achieve artistically and culturally significant goals. “[C]opying from existing songs, performances and instrumentals, “ say Behr, et al., “has been an important part of the creative process, as musicians have sought inspiration and signalled their membership of genres and located their style within traditions” (2017b). We can see the Bakhtinian dialogic all across musical copying here. When a piece of music borrows from or refers to another composition, it might “pay homage to its source (work or composer)” (i.e,

"honoring the work" (Interview, 2024; Lee, 2025)). This gesture establishes, "relationships between one piece and another; it is the composer or improviser who creates these relationships and the listener who recognizes them." (Burkholder, 2001).

Borrowing in music is, in fact, a part of the very fabric of composition. It is a "characteristic of modern culture [that] we have arrived at a point diametrically opposed to that on which our Western musical system was established, namely, that a new musical work should be based on one already in existence" (Carroll, 1978). In fact, copying in any artistic endeavor is woven into our social and personal identities. Mark Alfino writes, "Copying as a cognitive and social behavior is central to distinctively human modes of being and underlies evolutionary processes that both shape culture and allow culture to shape us" (2016). Copying, imitation, parody, inspiration, and the like are all integral parts of cultural production, and "[t]he use of pre-existing material is an established part of artistic creation" (Zahrádka, et al., 2025) . As Behr, et al. say, "Popular music then – *all* music, really – involves some debt to its antecedents. The concept of originality, and particularly its commercial exploitation, is in no small way derived from Romantic ideals" (2017a). Indeed, references, allusions, nods, and all forms of reference——covert or overt——are central to all humanities. As Henry Self says, "[f]rom musical references to

literary allusions to visual puns, the humanities bear innumerable examples of authors building on the foundations of their predecessor" (Self, 2002). The Ecclesiastical axiom of 'nothing new under the sun' applies (to some large degree at least) to all artistic works.

When specifically addressing the aesthetic and ethical nature of sample-based music while leaving the legal and financial aspects to other experts, it is important to reiterate that, "musicians consider sampling to be a full-fledged artistic endeavor. Sampling serves the transformative use of a music recording and the creation of a new piece of music through the innovative modification of the original recording" (Zahrádka, et al., 2025). Sampling pushes and subverts the long-standing tradition of recorded music by ushering in "a new area of instrumentation to be developed where you can literally use any sound at any precise (or not so precise) point in time" (Miller, 2008), and this subversion often places it in a separate category in listeners' minds. It has its own folkways and traits that give it the ability to pay homage to the original recording artists, to develop unique and interesting sounds, to add richness to pre-existing recordings, and, of course, to put new music in dialogue with earlier artists, genres, and traditions (Lee, 2025).

Sampling is inherently subversive to dominant culture, and this situates it in a contentious dialogue. It is a kind of cultural short circuit, and, as Slavoj Žižek describes it, short circuiting consists of reading a text "through the lens of a 'minor' [i.e., marginalized or subcultural] author, text or conceptual apparatus" (Žižek, 2006). It achieves this by being, as David J. Gunkel describes, a "citation" which, "unlike the forms of borrowing deployed in classical music…does not just quote from another work; it makes an exact copy of the actual performance of that work" (Gunkel, 2016). If borrowing or copying is an essential part of human culture (Alfino, 2016), the blatant and overt nature of sampling has a kind of honesty unseen in other artforms' modes of copying. Gunkel calls this kind of honesty in remix and sampling a "blasphemy". It perverts hegemonic structures and does so conspicuously with clear musical cuts and loops and the obvious combinations of separate recordings. "A remix," Gunkel says, "potentially violates every aspect of the way we have traditionally made sense of art and aesthetics, causing nothing less than monstrous but incredibly illuminating short circuits in the material of Western thought" (Gunkel, 2016)

It is difficult to pin down the ethics of music sampling. While author Joseph G. Schloss claims that the ethics of sampling are "theological" in that they are "timeless and

unchanging" (2004)——that it really is, as one Portland producer put it, "a world without rules" (Interview, 2024). Seemingly contradictorily, however, Schloss recognizes that "the discourse of aesthetic quality is primarily based on the relationship between the original context of a given sample and its use in a hip-hop song; that discourse consists of assessments of how creatively a producer has altered the original sample" (2004). (I must interject, however, that many of Schloss' opinions on the ethics of sampling seem to be influenced by the fact that he wrote *Making Beats: The Art of Sample-Based Hip-Hop* in 2004. His claim, for instance, that it is an ethical *axiom* that producers do not reveal the source of their samples is both currently, generally untrue and was not a completely universal truth in 2004.) There are, of course, racial and social considerations when parsing the ethics of music sampling. As a predominantly Black American artform, ethical questions about how or if non-Black artists should sample Black music are salient. There are potential solutions ranging from white artists refraining from sampling from marginalized cultures' music to full attribution and compensation for sampled recordings (Hesmondhalgh, 2006; Eckhause, 2019).

The relationship that Schloss mentions is, to many producers and ethicists, central to the act of sampling. As one Portland producer stated above, "it's in how you honor the

work.” Many of the artists I have spoken to over the years echo this same sentiment, and, as Thomas Porcello says, sample-based artists believe that “taking a short excerpt from James Brown, for example, inserting it in a new track constitutes fair use because the original is given new meaning through the act of being placed in a new context” (1991). This context is the dialogic, but, to recall Schloss’ belief in the inherently clandestine and opaque nature of sampling and Gunkel’s claim that sampling is “citation”, this dialogue is not always apparent. Connections between the producer and the original artist can be thought of like citations in academic writing because while they both have an “interest in acknowledging invention through ‘outside’ source materials, they also depart from academic conventions in important ways, particularly in the practice of how to cite those outside source materials” (Colton, 2016).

AI-Generated Composition and Collaboration

This literature review has, until now, addressed a cultural process and technology that has a nearly 75-year history. While most of the literature addresses the legal and financial pitfalls of music sampling, there are many studies on purely cultural and aesthetic ethics. One hallmark of digital music sampling, however, is its tendency to change over time——often

influenced by technological innovation and access. As of this writing, the latest innovation is AI-generated music. This innovation is two-fold as it pertains to music sampling. The first element is that generative AI itself often samples music from a data set consisting of pre-recorded music (Batlle-Roca, et al., 2024). The second is that artists are increasingly turning to generative AI rather than original recordings to generate new music. Many studies only address (1) the purely compositional processes of AI and/or (2) collaborative efforts between human artists and generative AI using compositional assistance or audio manipulation techniques rather than sample generation (Civit, et al., 2022; Collins, 2020; Lee et al., 2025; Singh and Jadhav, 2025; Szelogowski, 2021).

While music *generation* and sample production is the focus of this dissertation, all AI-generated music is first composed. Therefore, through literature on AI music composition we can understand some of the issues facing generation. The most consistent focus of scholarship of AI music composition is the question of AI's ability to exhibit creativity. Because creativity is a vague philosophical concept, researchers struggle to define it. They recognize it as a kind of informed, human expression of variation (de Mantaras, et. al, 2002). While early AI systems attempted to emulate this human variation through probabilistic means (de Mantaras, et. al, 2002),

incorporating randomness allowed for more novel composition (Ben-Tal, 2021). Most recently, effective AI music composition and generation has relied on neural networks and deep learning to scrape vast databases of recorded music and reassemble the pieces of data (tokens) extracted (Mullen, 2023).

A fundamental barrier that AI music composition and generation must overcome lies at the phenomenological and biological level. Creativity stems from more than mental calculations. Biological creativity can be understood as the result of the entirety of the historical and material biological world——our collective, grand memoir. Genetic and material forces combine throughout time to produce organisms that are capable of expressing these forces through creativity (Rohrmeier, 2022). Researchers and developers have focused heavily on AI's ability to resemble human minds in order to mimic the purely computational process of composing music (Guzman & Lewis, 2020), but there are questions of how closely these systems can reproduce human mental conditions. In addition to the problem of AI's processes being too dissimilar to the human mind, musical creativity is linked to humans' existence in the physical world, in their own bodies, and in meta-musical traditions that give their creativity context (Rohrmeier, 2022). This affects not only AI's ability to compose music; it also impacts its ability to perform or generate music in a way that is indistinguishable

from human musicians. AI's ability to perform music is also limited by its inability to account for live musical aberrations (e.g., unexpected tempo changes, mistakes from other players, etc.) (Zulić, 2019).

Many researchers believe that AI's role in composition, performance, and generation is necessarily a collaborative one. That is to say, AI is only able to act as a nucleation point or cyborgic augmentation of human musical art. AI is able to assist humans, because "the computer is a good accompanist for a human performer, as long as it is not the leader." (Zulić, 2019)

Being such a new technology, AI music generators are still restricted in both parameter-based models and in prompt-based ones. A study comparing 38 AI music generators, both neural network-based and using Magenta architecture, found that "the main issue [is] that AI music generation does not create longer recordings with 'a good musical pattern'" (Zhu et al., 2023).

Because AI technology is rapidly changing and becoming more advanced, and because it enters the zeitgeist more each day, attitudes, both public and academic, about it have changed (Pew Research Center, 2023; Pew Research Center, 2025; Stanford Institute for Human-Centered Artificial Intelligence [Stanford HAI], 2026). When I began the pre-study for this research, there were fewer articles and books about AI-generated music. That has changed. One specific change is the number of articles regarding

the actual *recorded* musical output of AI generators. Many of the previous articles in this literature review were written in or before 2023.

The increased number of scholarly articles about AI-generated musical recordings is correlated with the launch of the two most popular AI music generators, Suno and Udio, released in December, 2023 and April, 2024, respectively. The gulf between human creativity and the capability of machines to emulate or even truly experience that creativity had, however, been a question for decades before AI-music recording generators were publicly available.

As scholars attempt to understand and describe what is essential about human creativity, especially in terms of music composition, they point to different indicators, the presence or absence of which suggest the presence or absence of human creativity. Among these indicators are novelty (Boden, 2004), surprise (Lee, 2022), an understanding of human thought systems and values (Boden, 1998), an understanding of a work's position and dialogue with the rest of human culture (Collins, 2007), subjective and first-person experience (Ukpaka, 2024), and agency and curiosity (Brainard, 2023).

Some question whether there is anything special or unique about human creativity. These scholars believe that in the possibility that artificial intelligence may exhibit creativity

to no less a degree than human agents. Philosophy scholar and pianist Caterina Moruzzi claims that creativity requires problem-solving, evaluation, and naivety——all traits she believes are present in AI agents. Naivety, she claims, is "the lack of past exposure to and knowledge of the situation and the impossibility for agents to undertake the task at hand by drawing on their behavioral repertoire" (2020).

Margaret Boden, while critical of AI's ability to understand human values, claims that it does exhibit a limited creativity. She puts forward three modes of creativity:

1. "Combinational Creativity": New combinations of existing ideas
2. "Exploratory Creativity": "the generation of novel ideas by the exploration of structured conceptual spaces."
3. "Transformational Creativity": "the transformation of some (one or more) dimension of the space, so that new structures can be generated which could not have arisen before." (1998)

Boden claims that AI is most capable of the first two kinds of creativity: combinational and exploratory. This is because the conceptual spaces in which the AI creates are intact and act as guardrails. Transforming the "dimension of the [conceptual]

space" is challenging for AI creativity because these methods "embody no evaluative criteria at all" (1998).

Because we often privilege human creative artifacts over procedurally, algorithmically, or AI-generated ones, we neglect to recognize an important element of what we find creative about a work: the process of its making. Simon Colton invokes Marcel Duchamp's 1917 avant-garde sculpture *Fountain*——a premade urinal presented as art. Because we understand something about the process of its making (in the case of Duchamp, the fact that he didn't make it at all), we see its creativity. To Colton, if creative computer models were also transparent about their processes of making, they would exhibit creativity at the same level as humans (2008).

Recent years have seen more artistic and scholarly explorations of AI-human music collaboration. In 2017, artist Taryn Southern released her album *I AM AI*, an eight-song LP featuring lyrics and vocals performances by Southern and all other music provided by an AI model. Holly Herndon released her album *Proto* (2019), which is a collaboration between Herndon, Mat Dryhurst, and an AI model they developed and named "Spawn". The band YACHT trained an AI model on their entire 82-song catalog and used it to create the entirety of their album *Chain Tripping* (2019). They did not add any new material to the AI output; they restricted their involvement to subtraction of

unwanted elements (Ta et al., 2019). Canadian artist Grimes trained an AI model on her voice and opened the model up to the public for users to create their own music using the model. The project, Elf.Tech, "democratizes her sonic identity by turning her voice into a co-creation asset for others" (Soundverse, 2026).

With the exception of Taryn Southern's album, these projects involved the artists training AI models on their own works. Recent studies, however, have explored how artists collaborate with larger models like Suno or Udio. These models are trained on large amounts of copyrighted material (Carlini et al., 2021; Corcoran and Monroe, 2024; Landschoot, 2024; UMG Recordings, Inc. v. Suno, Inc., 2024; Weatherbed, 2024).

A 2026 study by Sicong Zhao showed how artists worked with Suno on an algorithmic level to achieve desired outputs. It explores a hierarchy of agency between user and AI. The article recognizes three modalities that artists typically use to collaborate with Suno:

1. "Exploratory Improvisation": Recognizing that it is impossible for the artists to get Suno to do exactly what they want and to accept "the unpredictability of algorithms as a creative resource".
2. "Adaptive Calibration" - Gradual attempts to steer Suno closer to what the artist wants while, at the same time,

pulling the artist closer to what Suno creates. This is a collaborative effort with outcomes based on shared and sometimes adversarial agency of the artist and AI.

3. "Tactical Appropriation" - Manipulating outcomes by carefully engineering prompts based on increasing understanding of how Suno typically responds to prompts.

This shift in how artists made music marks a change in the demands placed on musicians who choose to use AI:

> Whereas traditional music production valued technical mastery of instruments, compositional methods, and production software, participants in this study described cultivating a different set of skills, such as discerning algorithmic tendencies, sensing subtle effects of prompt phrasing, and exercising aesthetic judgement about when to accept, reject, or further iterate on generated material (Zhao, 2026).

Looking at the less ethical applications of the technology used in Grimes' Elf.Tech, a 2024 study looks at how AI voice modelling allows music fans to express some level of creativity. This study looks at the use of AI to create music that sounds like "deceased or retired popular music artists".

> ...if we agree that popular music has always been the fruit of collective actions by individuals identified as authors

> and a number of people supporting them…then the field opens up for accepting the fact that an algorithm has joined this group (Galuszkaj, 2024).

Users are able to become co-agents with AI models, and Galuszkaj sees this as a kind of intra-action and collaboration.

While these studies have utilized musical recording rather than purely compositional tools, it is important to mention a 2017 study conducted by a number of researchers/musicians. This study trained a *folk-rnn* model ("a long short-term memory (LSTM) network trained to model textual sequences of music transcriptions") on Irish folk songs. It produced written pieces of music (not recordings), and the researchers then performed the music. Sturm (an author and one of the composers) says he sees computer-generated compositions as "raw material" and does not believe that the use of them is a problem. In fact, he believes the admitted use of computer-generated compositions might be intriguing to the audience. Ben-Tal, another author/composer, says that it was his own creativity and agency that was the "dominant and final arbiter" in his piece. They found that the collaborative use of AI-music is not a success/failure dichotomy. The ways that AI music generators seem to fail (not follow their training data, produce undesired results) can inspire new ideas (Bob, et al., 2019)

Research that addresses our mythologizing and anthropomorphizing tendencies when discussing technology is also relevant to this dissertation. We often speak of technology, especially AI, as if it had superhuman or supernatural capabilities (Avdeeff, 2019). The language regarding AI often positions it within myth by using the term "thinking" instead of "computing", and "recognizing" instead of "pattern matching". AI is referred to in terms of a living thing rather than a machine, and discourse about AI often focuses on its future capabilities, making conversation about it situated in both the present and an imagined future (Natale & Ballatore, 2017). These equivocations with humanity produce a kind of unease or anxiety. Referring specifically to AI-generated music, Melissa Avdeeff says, "The knowledge that this music was not created entirely by human minds seems to evoke a degree of unease, not unlike the response seen in the uncanny valley of robotics and computer-generated human images" (2019).

Finally, the importance of how we think of AI in terms of mediation is incredibly important. Emergent questions about whether or not computers (especially AI models) are agents and are able to communicate in the same way as humans speak directly to how we interact with them collaboratively (Gunkel, 2012). AI is distinct from other media because it does not simply transmit a message; it creates the message. But this agency is

contingent. As Simone Natale says, "this agency only emerges in interaction and relationship with humans and their cultures." Because the erstwhile primacy of humans as sole agents of message generation is challenged by AI, entirely new models of communication theory must be developed. As Andrea Guzman and Seth Lewis say:

> ...communication theory has historically conceptualized people as communicators and technology as mediators, and it is around this line between people and thing that theoretical and institutional borders have been based within the communication discipline as a whole. [Human-machine communication], however, breaks with the theoretical assumption that communication is exclusive to humans (2019).

The gap in the literature is situated at the intersection of these studies. The history of sampling shows us the cultural dialogic and ethical problematics of the practice. The introduction of technology offers possibilities for access and innovation. Our understanding of human creativity and its relationship to the potential of AI-generated creativity leaves us in a destabilized existential position. The first forays into collaboration with AI-generated music recordings suggest potentially exciting new territories of artistic expression, but

the encroaching anxiety about the new technology and our position within (or without) artistic traditions make us nervous about what's next. Part of the unease we feel is centered around a dissonance caused by the idea that AI is not a medium in a traditional sense. It very well could occupy the role of agent and communicator——identities typically held by organic things, usually human things.

Chapter V

Theoretical Framework

I will first utilize my concept of *culture laundering* to investigate the ethics of AI music generators. This addresses disruptions in cultural dialogues. While one of the greatest evils of culture laundering affects original artists by erasing their credit from sampled works, it also affects the artists who sample these works. If, as Alfino and Carroll say above, cultural borrowing is a natural and necessary part of cultural expression, the loss of dialogic borrowing greatly affects new artists as well. Additionally, culture laundering and AI's ability to produce creative artifacts that are unmoored from human story and occupy no physical space alienate these artifacts form the material and human world.

Culture laundering draws heavily from Walter Benjamin's lost *aura* (1968) and Jean Baudrillard's *simulacra* (2023). For Benjamin, the work of art loses its aura through reproduction because, in part, it loses its spatial distance from the onlooker/listener and it erases place, and freezes the work of art in time. Benjamin believes that there is a cultic nature of unique, material pieces of art through their insistence that consumers encounter them in a specific place, recognizing materiality and the changes that occur to the work of art over time. If a closed distance (e.g., the viewer and the photograph

are physically *anywhere* together) robs artwork of its aura, an erased distance collapses the concept of aura entirely. Because original pieces of music are laundered through generative AI, these AI models erase even the concept of distance. There is no distance between the sampling musician and the sampled musician because generative AI *appears* to create music wholecloth——music without an original artist.

This leads us to a Baudrillardian dystopia. We can track the precession of representation, simulation, and simulacrum in the process of AI sampling:

1. The original recording is the *representation* (i.e., it "is a reflection of a profound reality")
2. The AI-generated music recording is the *simulation* (i.e., it "masks the absence of a profound reality")
3. The AI-generated music recording with which humans do not collaborate, by entering back into the AI model's own data set, is the *simulacrum* (i.e., it "has no relation to any reality whatsoever; it is its own pure simulacrum") (Baudrillard, 2023)

To clarify that last point, AI-generated music that is uploaded to streaming sites is likely to find its way back into the data set of the very AI platform that created it. It is through this process that culture laundering sees the future it establishes for itself. Human cultural, ethical, and capital exchange are,

eventually, circumnavigated. The aesthetics of cultural artifacts are flattened and referential only to works of art that drift further and further away from their origins in reality. The serendipity, materiality, error, innovation, happy accidents, phenomenological and emotional influences, and cultural situatedness of human influence on works of art are erased.

The theoretical framework that will guide my post-qualitative methods is primarily rooted in Karen Barad's theory of intra-action. I will use this theory to show that some level of recuperation from the effects of culture laundering is possible by way of collaboration. Intra-action tells us that each element of an action is performed by a number of agents who coalesce into a single subject (Barad, 2007). For my purposes, the AI music generator platform, my physical music studio, instruments, software, other musicians, and my own contributions become a single new entity, imbued with traits of each element, in order to create new art that establishes its humanity while also establishing its material, relational, and AI components.

Chapter VI

Methods

This research will be autoethnographic. In an attempt to understand the cultural ramifications of AI-generated music and the processes by which we might reintegrate it into the human story, it is appropriate to examine AI music through my own experiences as an artist. An autoethnography differs from autobiography in that the former describes one's own experience within a culture, and the latter describes one's own experience within themselves (Reed-Danahay, 2019). Because, "autoethnography is an approach to research and writing that seeks to describe and systematically analyze personal experience in order to understand cultural experience," (Ellis, et al., 2015) I will be able to explore AI's effects on culture by drawing upon my own life's story, my experience as an artist, my processes and reflections on the creative process, and further theoretical findings.

It is also important to note that I am unable or unwilling to write without the presence of my own feelings and deep connection to the subject. I cannot or will not express these internal experiences in clinical, traditionally academic language. There is time and space in this dissertation for direct, dense, dispassionate writing, but I value "a self…that allows expression of passion and spirit" (Spry, 2001). While

some academics bristle at more floral and expressive modes of academic writing, I find it useful——indespenable to the project. “However academically heretical this performance of selves may be,” says Tami Spry, “I have learned that heresy is greatly maligned and, when put to good use, can begin a robust dance of agency in one's personal/political/professional life” (2001)

To address research question one, I will explore *Culture Laundering*. Through autoethnographic case studies, I will show that generative AI erases the social and cultural identity of original artists and that any relationship or dialogue between these original artists and artists who sample them is disrupted. This disruption mirrors money laundering in that it takes unaccounted-for material and “washes” it through AI. While threats to legal and financial relationships between original artists and sampling artists are greatly affected by culture laundering, I will focus specifically on how culture laundering disrupts cultural dialogues. As an autoethnography, I will outline some of the relationships and connections I have had with other artists and people/places/objects in my own life to show the importance of these dialogues.

To address research questions two and three, I will use a post-qualitative method. Employing practice-as-research, I will explore the processes by which a music producer can recuperate sample material laundered through generative AI. This will

include musical and writing products that document the process of making new music that incorporates AI-generated samples *and* live instrumentation and voice. I will use Suno, a generative AI platform, to generate samples and document the process of using these samples to create re-humanized music that is co-created with AI. These methodologies will be focalized through Karen Barad's agential realism theory and their concept of intra-action.

I have been a music producer since I was a teenager simply for the love of the artform. This aspect of my life has, in many ways, felt distinct and separate from my academic life because, as Robin Nelson says, "artists often see themselves as outsiders perhaps with a different vision, literally and metaphorically, from non-artists" (2022). A person's identity as a practitioner *and* as a researcher does, however, afford them the opportunity to use one set of experiences to inform the other, and vice versa (Stewart, 2010). I feel that it would be impossible for me to investigate our current artistic, technological, and cultural moment without getting my hands dirty and combining my experience as a researcher with my experience as an artist.

Chapter VII

Autoethnographic Memoir of Practice

Mom's Duffle Bag

In truth, the experiments I have used to better understand how we might intra-act with AI-generated music began more than thirty years ago. Since childhood, my relationship with music has been a patchwork one. I have always made music by any means necessary. Early on, this meant studying the trumpet in the traditional fashion of an American fifth grader. Year over year, I took this work more and more seriously until I was studying every day——playing jazz, playing classical, taking private lessons, writing fiddly, aimless pieces in my bedroom and recording them on my Talkboy tape recorder. Music *as a performing art* was central to my life, and I credit my participation in high school ensembles with keeping me from getting into any real trouble as a teen. Mr. Cappelluti won't let you be first-chair trumpet in the Centennial High School senior wind ensemble if you get on Gresham Police's bad side.

Mr. Cappelluti, in his jazz ensemble and symphonic classes, was required by the school to assign non-performance projects in addition to our regular performance duties. These assignments typically took the form of essays describing a musician or a genre accompanied by a recorded musical example. For Freshman Jazz Band, I chose to write about Spyro Gyra, a jazz fusion band

that my mother had introduced me to. She was a dance teacher and choreographer, and she carried with her a duffle bag of CDs lent to her by friends of all walks of life. Our family being too poor to afford many CDs or cassettes of our own, this regularly replenished supply of music was a windfall for me. Amid the adult contemporary, 90s new age, and alternative rock CDs, I would sometimes find odd gems. I came across Spyro Gyra's *Road Scholars* (1998), a compilation album of live performances from various concerts around the United States. The cool, island tones of their single "Morning Dance" entranced me——perhaps uncommonly so for a thirteen year old. It seems to me now that Spyro Gyra is more suited to a 30-something middle manager in the 1990s dreaming of a yearly vacation to West Palm Beach or Aruba. In those AltaVista and Webcrawler years, I dug up some basic information about the group, combined that with what I could glean from the CD jacket, and wrote an essay. I recall being just a little embarrassed finishing my presentation by pressing play on the class CD player and listening to the relaxing, cooled-out vibes of "Morning Dance" with my fourteen-year-old peers.

In my sophomore year, teenage moodiness had taken hold. In addition to bands like Metallica and Deftones, my friends and I had begun to download Portishead, Massive Attack, Tricky, and the like, from the internet. The way this moment in recorded

music merged hip hop (a mostly foreign genre to me at that point) and jazz (something I played on trumpet nearly every day) intrigued me. That it was often dark and brooding appealed to my teenage sensibilities. Digging through my mother's duffle bag, now replenished with 1999's fresh supply of random CDs, I found something unexpected. I had never seen a CD in a cardboard case. "DJ Cam" it said in heavily distorted writing. *Mad Blunted Jazz*.

When I say that that CD suddenly altered my understanding and love of music, I mean it. Playing it alone on the family boombox on the floor of the living room, I instantly recognized what I was hearing, even though I had never truly heard anything quite like it before. The CD begins with "Abstract Intro". I was intrigued and, if I'm honest, more than a little afraid someone might hear its repeated lyric: "N****s I bring terror——to your fuckin' head——the abstract era". I would later find out that this lyric was sampled from a nine-minute recording of a freestyle by the rapper Q-Tip.

The next track, "Gangsta Shit", also threatened to get me into trouble. The continually whispered word "terrorist" floats throughout the track amid sitars and vibraphones and cymbal-heavy drums. Even in the twilight of the 1990s, only a few years before 9/11, the first World Trade Center bombing in 1993 and The Cranberries' song "Zombie" (1994)——an exasperated, yodeling, power-chorded anthem exposing young Americans to The

Troubles in Northern Ireland, which had only ceased the year before——the word "terrorist" was a loaded one. Although "Gangsta Shit" was made by an artist with "DJ" in his name (and I vaguely knew what a DJ was), I tried to imagine the band I was hearing. In my mind, I saw a wood-paneled recording studio with a vibraphone player positioned next to a seated sitar player. The drummer has his head down behind the drum baffles banging away at the cymbals. But then I heard the scratch of a record. There was a turntablist in the room. A vibraphonist and a sitarist and a drummer and a turntablist.

No.

There was only a turntablist.

There was only a French man calling himself DJ Cam who had dug through his version of my mother's duffle bag and found recordings of this vibraphonist——of this sitarist——of this (these?) drummers. He found these records and, one by one, mixed them together. It would be years before I understood exactly how he may have accomplished this, but I knew that he had. *I knew that one could*.

Mad Blunted Jazz felt clandestine to say the least. All of it was on the edge of what I felt allowed to do——some of it was beyond that edge. The unutterable words, the unorthodox approach to music, *the theft* (was it theft? I wondered.). I was baffled that these different records (I wondered how many) could all

work together and create something new. In time, in key, in feeling. I knew that these source recordings were disparate but that "Gangsta Shit" was a unified song. I later discovered that this track samples eight different songs released from 1960 to 1994 (WhoSampled, n.d.).

When "Gangsta Shit" ended, the eponymous track played.

"Mad Blunted Jazz" is a simpler song. It contains samples from only four records. Each of these four records are from well known artists: Herbie Hancock, Bobby Hutcherson, Junior Mance, and Sade. The Sade sample ("Cherish the Day (Long Version)" (1992)) is so prevalent in the track that "Mad Blunted Jazz" could almost be labeled a Sade remix. DJ Cam loops the first bar of the run-out of "Cherish the Day" and layers two measures of Hutcherson's soothing vibraphone over it. An ethereal voice reverberates in time (the sample for this is yet unidentified). This steady loop is interrupted by an interlude of Hancock's piano looped over Mance's drums before sliding back into the Sade/Hutcherson section.

But I didn't know any of this. I only knew that "Mad Blunted Jazz" made this artform start to make sense to me. And I was enchanted by it. It was a synthesis of the musical world I had come to know through years of dedicated work and a musical world that had previously felt inaccessible to me: sampling, hip hop, production. Not only did I know what DJ Cam was doing, I

knew that I could figure out a way to do it, too. I had a wild idea for my Jazz Band assignment: I was going to write about the genre, and I was going to *make* the music I would present to the class.

It's hard to describe to younger producers now what it took to produce music with samples in the late 90s. In the same vein, it is hard for producers who were young in the late 90s to understand how people produced music with samples in the early 90s, the 80s, the 70s. It is important to note that I was entirely unable to ask my parents for any of the hardware necessary to produce sample-based music. If I even knew what that hardware was, there was no way we could afford it. Around that time, the necessary hardware would have been a direct drive turntable (two, actually), a digital music sampler (two would be preferred), and a DJ mixer (one would suffice)——not to mention the equipment necessary to record the music. Stymied by the need for hardware, I knew that there was software out there that could approximate the work. My family had a cheap PC, and I prayed that it could run any software that could make music.

I had a friend, Stevie, who was the first person any of us knew who had a broadband internet connection. For five bucks, he would download a CD's worth of music and burn it for you. All you had to do was hand him a list of songs, and he took care of the rest. Likewise, he would pirate any software you asked for

(provided he could find it through a P2P system) and burn you a CD complete with serial numbers and cracking software. Still, five bucks. I forwent my usual lunch spaghetti from the cafeteria and handed him my lunch money. "Any software that can make a beat," I requested. *If I'm going to steal sounds from other records*, I thought, *I may as well start as I mean to go on*. A few days later, Stevie handed me a gold-colored CDr with "Sonic Foundry - Acid Pro" (1998-2003) on it, the program's name written in Sharpie.

Acid Pro was an early digital audio workstation (DAW), and it did, in fact, run on my family's computer (although it was slow and crashed from time to time, teaching me a valuable lesson: play the CTRL+S key like an instrument. Save your work constantly.). I can still clearly see Acid Pro's user interface; surprisingly, it looked very similar to how DAWs still look today. In an age before YouTube tutorials and Reddit discussions, I slowly explored the software. It naturally and simply did exactly what I needed it to do. I could drag audio files into a timeline, cut sections of them out (preserving only the loops I wanted), and layer them with other audio files. I instantly felt connected to the interface, and both it and I seemed to anticipate what the other would do next. How we were to intra-act (a practice which seemed natural given my enthusiasm and Acid Pro's interface) would determine not just

the quality of my assignment, but the trajectory of my artistic life. As Barad says, "it is through specific intra-actions that phenomena come to matter——in both senses of the word" (2003).

In 1999, I didn't know how to record audio from external sources, but Acid Pro came pre-loaded with hundreds of samples. I felt that to make this music *for real*, I should be sampling from external sources, but stock samples were all I had. I dragged them into the project, timed them, tuned them, looped them, arranged them, made sure the volumes were right, and saved the file. I don't remember how I got the track I made back to Stevie, but he charged the standard five bucks to get it burned to CD.

One track, cobbled together from four or five separate audio sources, with my new producer name (embarrassingly it was DJ Ambience, but only for one track). I played it for my Jazz Band classmates after a brief presentation on what I had erroneously been told was the genre "acid jazz". Mr. Cappelluti was none the wiser that what I had written about and what I had produced was, technically speaking, "trip hop". It didn't matter. He was floored that I made it, and I was floored that I made it——a dizzy, downtempo track with (surprise) vibraphone and heavily syncopated drums. In spite of my daily uniform of heavy metal band t-shirts and camo jackets——my hair in the awkward stages of growing long——I started to become known as a

beatmaker. I still have that track on a hard drive somewhere. It sounds haphazardly pieced together and simple, but it began a lifelong artistic practice.

It was a patchwork track——a patchwork process——a patchwork path to the artform. I had dug through inspiration in the duffle bag like producers dig for records until I stumbled upon something new and mysterious: that DJ Cam CD. Before I began sampling, I knew the traditions I was awkwardly entering into when playing other people's music on instruments. When I fumbled through Freddie Hubbard's trumpet part on Herbie Hancock's "Watermelon Man" (1962), I understood where I fit in the conversation. I knew who I was in dialogue with when I clumsily picked out the intro guitar part to "Root" by Deftones. If these artists could hear me struggle my way through their music, they might smirk in pitying appreciation. But what would they think if I took their music wholesale, chopped it up, changed its pitch, and sold it as my own? I would spend my whole life wondering, negotiating with myself whether this was ethical. I have never wavered on whether I believe that sampling is a legitimate artform with its own traditions and practices and place in culture, and yet its ethics remain a nagging question.

A Thousand Years' Grain

Following my sophomore-year foray into sampling and music production, I slowly honed my beatmaking skills and interests. PCs became cheaper. I could afford my own hardware sampler (a Boss SP-303). DAWs became easier to pirate. A few forums and tutorial videos began popping up on the internet of the 2000s.

A lifelong fan of *Twilight Zone* (1959-64), I ran audio cables from my DVD player to my computer and sampled selections from my 9-disc DVD box set when I was nineteen years old. In retrospect, many of the *Twilight Zone* episodes I sampled dealt with time travel (e.g., "One Hundred Yards Over the Rim" and "The Odyssey of Flight 33"). At the risk of being overly poetic, I've always found some significance in this. I came to understand that sampling audio establishes a dialogue with a number of things: other musicians and recording technicians and producers, other sample-based artists, audio from major events and culture (e.g., news broadcasts, movie quotes, speeches, etc.), the objects necessary to create the music, and with the past itself. This is a dialogue with one's own past——the music one grew up with and audio from the life one has lived——and a dialogue with our collective past. It is a form of time travel.

Following the brief era of *Twilight Zone* beats, I started a number of short-lived sample-based projects over the years. I am mostly grateful that the CDs and hard drives that contained this

juvenilia have been lost in boxes during moves or degraded beyond recovery. Outside of their nostalgic value, they were mostly bizarre experiments subconsciously meant as explorations of what this artistic process could do. (Note: since writing this, I have stumbled upon a number of these CDs in playable condition. I should have given myself more credit. While a bit raw and simplistic, they do offer some sense of novelty and, dare I say it, listenability.). At nineteen, I started a music project with a longtime friend. Inspired by artists like Team Sleep and Boards of Canada, we tried to emulate the glitchy, lofi aesthetics of early-2000s underground electronic music. This era marked my first experiences with *remediation* and a seminal moment in my life-long practice of intra-action with music-making objects.

Team Sleep was a side project of the aggressive art rock band Deftones' frontman Chino Moreno. Early leaked demos featured his signature breathy voice with an artist named DJ Crook providing haunting, lo-fi textures and stuttering drums. Nearly all of Team Sleep's original music was leaked through file sharing software in 2003, and by then, we all had our own CD burners. We could save our five bucks for a couple packs of cigarettes. The tracks "Cambodia" (later renamed "Ever (Foreign Flag)") and "Death by Plane" (all demos of these tracks were recorded in either 2002 or 2003) were two of the first songs we

heard. Having a few years of beatmaking under my belt at that point, I recall trying to figure out how DJ Crook made his drums sound like he did. Where did he get those degraded, mournful samples? Then I realized something else: this was sample-based music, but it had guitarist Todd Wilkinson meekly strumming, low in the mix——or hammering on heavily distorted chords in drop D tuning. I understood then that Team Sleep were able to combine samples, vocals, and guitars and make it all work as one. Rather than relying on and being subject to the lo-fi antiquity of vinyl samples as DJ Cam and thousands of other producers had done, Team Sleep was making it sound the way it did *on purpose*. They were somehow able to take new, clean recordings of drums, guitars, and keys and make them sound old. In retrospect, I know that this is exactly what bands like Portishead had been doing since at least 1994, but it was a revelation to me in 2003. The fact that producers were sampling old records and blending them with new recordings opened up brand new possibilities. Living in the working class bedroom community of Gresham, Oregon, I did not know very many other music producers, so I was left to discover these things mostly on my own.

From what I can tell from screengrabs and live videos, I believe that DJ Crook used an E-mu Systems SP-1200 for Team Sleep's demos. The SP-1200 was an early sampling drum machine released in 1987. Unlike previous drum machines such as the Linn

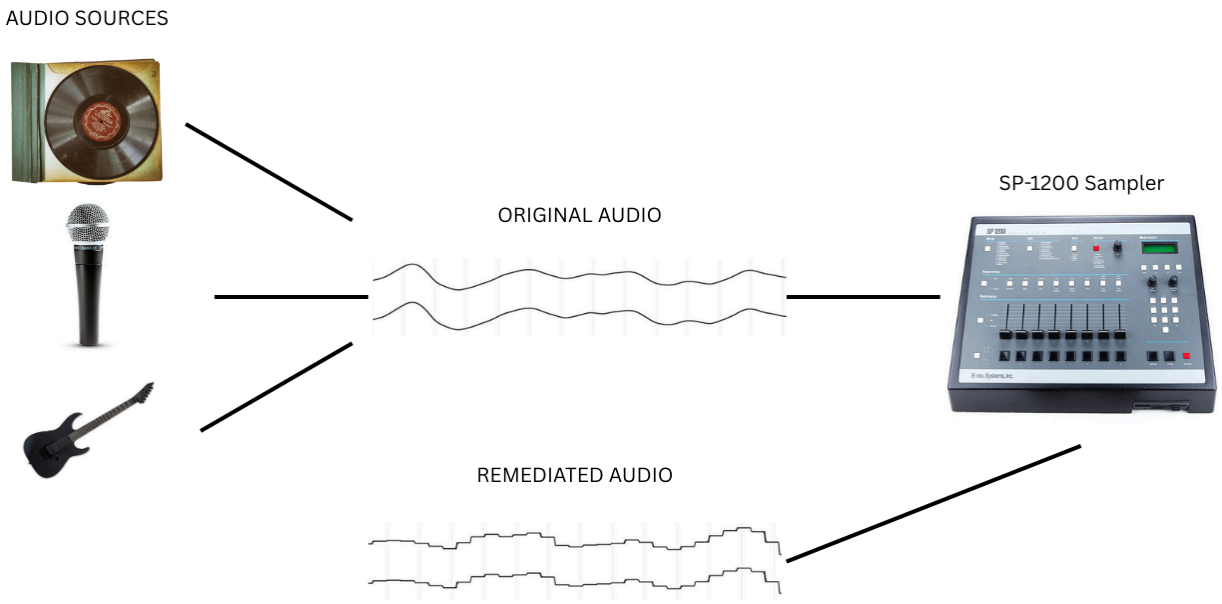
Drum designed by Roger Linn in 1982 and the TR-808 released by Roland in 1980, the SP-1200 by E-mu Systems (and its predecessor, the SP-12) did not come preloaded with audio samples. Instead, users are able to record their own percussive, melodic, and textural samples into the machine. They are then able to play those samples back by pressing the buttons on the sampler. Due to the SP-1200's data capacity limitations, users almost invariably must reduce the quality of the samples they record (i.e., users lower the sample rate at which the SP-1200 records incoming audio). This results in a ringy, scratchy sound that has a lowered dynamic range (i.e., it does not have the full high and low frequencies of the original recordings it samples) (Figure 1). Its early use by hip hop producers in the 1980s and 90s introduced this incidental sound into the genre's music.

Before long, the lo-fi sound of the SP-1200 became an aesthetic choice that producers sought out for their productions, and they still do it to this day. It appears that that is exactly what DJ Crook did for the Team Sleep demos. Rather than simply recording live drums and instruments, or upgrading to a contemporaneously modern sampler, DJ Crook opted to use this older piece of equipment to invoke a particular sound. An even easier and higher fidelity option would have been for DJ Crook to use a DAW to arrange and trigger his samples. He

chose, instead, to remediate his samples through an older piece of equipment.

Figure 1

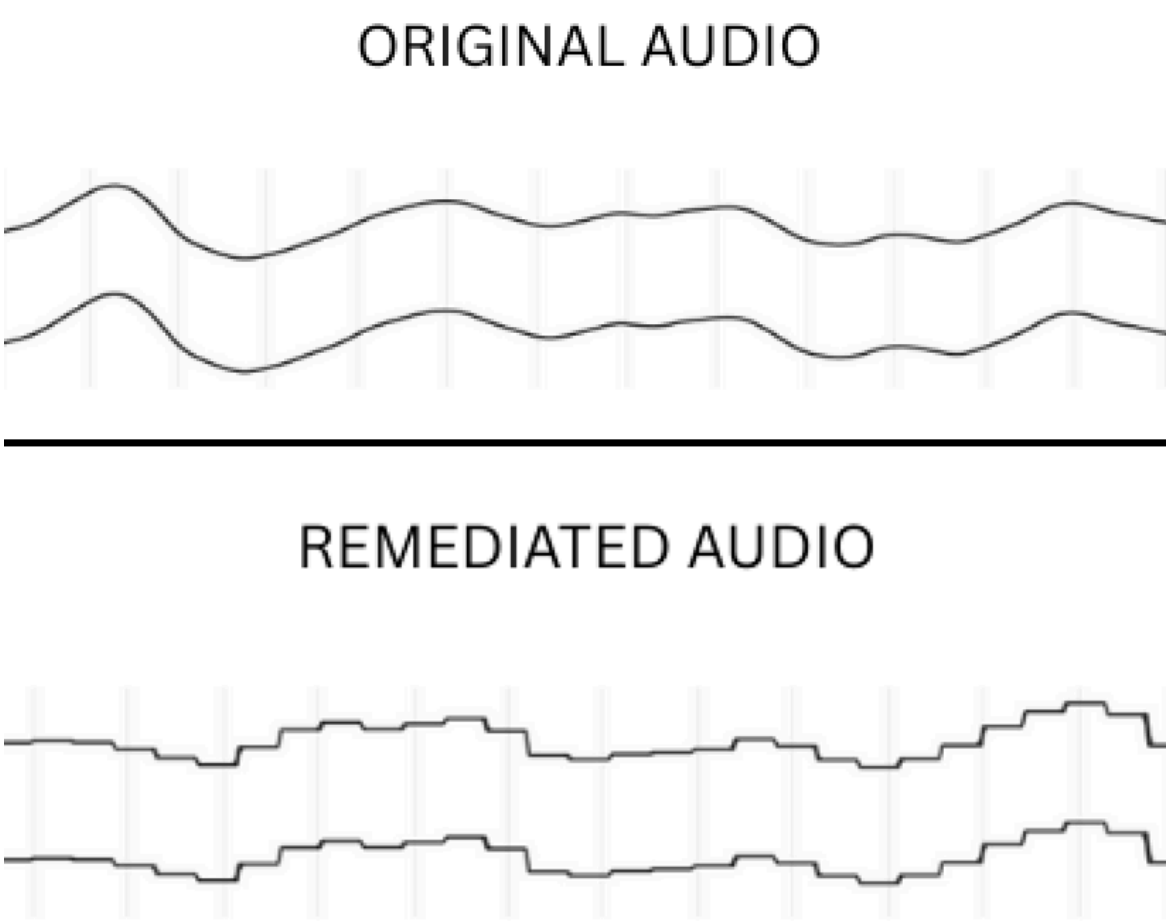
Analog Audio Remediated Through an SP-1200 Sampler



Notice that the audio waveform of the remediated audio has visible *steps* whereas the original audio is much smoother. This is a result of a reduced *sample rate*. In order to save space, early samplers recorded with lower sample rates, among other space-saving measures. Put simply, the lower a sample rate is, the less frequently the recording device measures the incoming audio. Whereas a modern DAW can capture up to 96,000 audio samples per second, the SP-1200's sample rate was just slightly more than 26,000 (Figure 2).

Figure 2

Low Sample Rates' Effects on Analog Audio



Bit depth (also known as *sample resolution*) also affects audio recording fidelity. This metric describes the detail or "resolution" of each audio sample that a recording device records. For each of the 26,000, 48,000, or 96,000 samples per second that a digital recording device takes, the accuracy of the sample (i.e., its adherence to the source audio) is

determined by its bit depth. This primarily affects signal noise (unintended hiss or tonal noise) and dynamic range (the difference between high and low volume). Modern DAWs typically have a resolution of 32 bits (although a resolution of 64 bits is common for some applications). The SP-1200 has a resolution of only 12 bits.

Around the time that I first listened to the leaked Team Sleep demos, I also heard the album *Geogaddi* by Scottish electronic music duo Boards of Canada, which had been released just a year earlier in 2002. I was initially drawn to its eerie aesthetic and downtempo, boom bap drum loops. *Geogaddi* is a markedly unsettling record—even more so than Boards of Canada's previous LP *Music Has the Right to Children* (1998), and after my sheer awe of their sound had settled in, I investigated why it sounded so eerie. I also investigated why it sounded so *familiar*.

Geogaddi does not sample jazz records from the 1960s. While it does contain a few drum samples from 1970s funk songs (similar to those found in *Mad Blunted Jazz*), it draws its source material from unexpected places. *Geogaddi* samples *Sesame Street* (1969-present) episodes, children's sing-along records, nature documentaries, and Christian-produced Satanic Panic videos of the 80s and 90s. Some of these sound like VHS copies

of VHS copies——tapes played over and over again in a childhood home in Boards of Canada's native Scotland——television broadcasts hastily recorded. They are warped and garbled and degraded. They have gone through the time machine, but not unscathed.

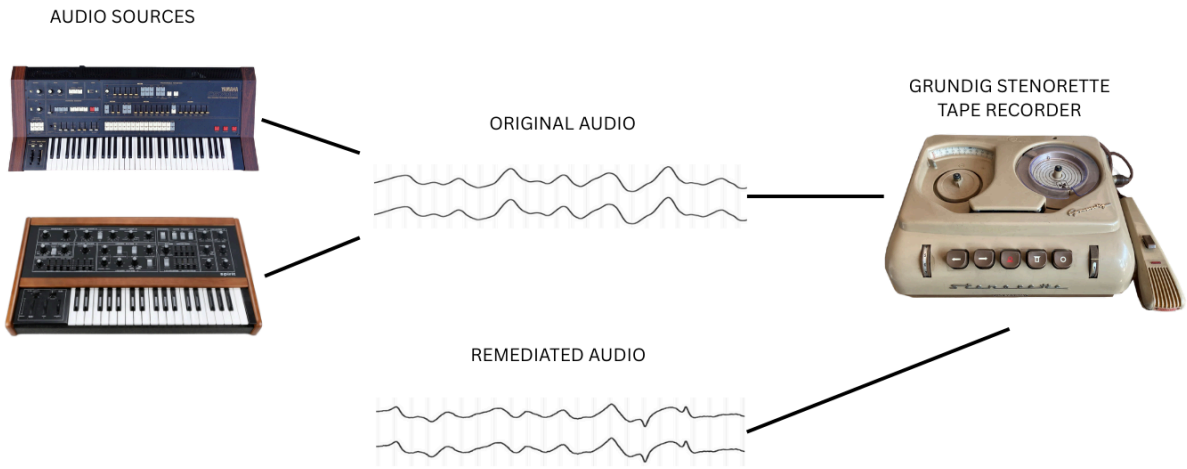
And this time machine resonated with me. I grew up with *Sesame Street*, sing-along records, Satanic Panic broadcasts, and, most of all, nature documentaries. The dialogue of *Geogaddi* is between Boards of Canada (co-producers and brothers Mike Sandison and Marcus Eoin) and the sounds they had sampled; *and* it was a dialogue was between me and Mike Sandison and Marcus Eoin and that same music. *Geogaddi* describes a vast web of relationships and life stories, and I had never fully experienced a system of relationships quite like that. I imagined what connection these brothers had to this collection of samples. Had they heard them as children? Were there home-recorded VHS tapes lined up on a shelf in their home in remote Cullen on the North Sea coast of Scotland? I imagined what lived connection I had to the brothers by way of these samples. Had they seen the same *Nova* (1974-present) episodes as I had growing up? Were they similarly and simultaneously as terrified and fascinated as I was, sitting on the floor of our living rooms watching low-budget broadcasts by evangelicals claiming that Church of Satan founder Anton LaVey was coming to

sacrifice children? And I wondered: where did they get their synthesizer samples from?

I found, however, that these often weren't samples at all. There has been decades-long speculation about the synthesizers that Boards of Canada uses. They almost certainly heavily use a Yamaha CS-70M and a Crumar synth (Equipboard, n.d.). But I would come to find that this is not nearly as important as what they do with the synthesizer recordings. Boards of Canada do what, in music production, is called *printing*. This is when a musician (or recording engineer or mixing engineer) creates a clean recording of their instrument, these days on computers, and sends that audio signal through some physical device or media to alter its timbre. Boards of Canada famously use an inexpensive tape recorder made by a German company called Grundig. The unsteady motors and cheap tape stock of these recorders degrade the synthesizers' clean signals and allow them to match the eroded fidelity of the warbly VHS samples they play alongside. This is how Boards of Canada creates one cohesive sound among a plethora of audio sources. This is how they and countless other producers add new recordings to old ones to create cohesion (Figure 3).

Figure 3

Grundig Stenorette's Effects on Audio



In an interview with *Remix* magazine, Marcus Eoin says,

> The great thing with machines such as the Grundig is that it's tragically bad. Whatever you record into it just doesn't come out unscathed…when you hit the tape deck with the right volume…it's at that exact sweet spot that it is saturating the tape. So if you then sample back the playback, it's got a thousand years' grain on it. (Hutton, 2005)

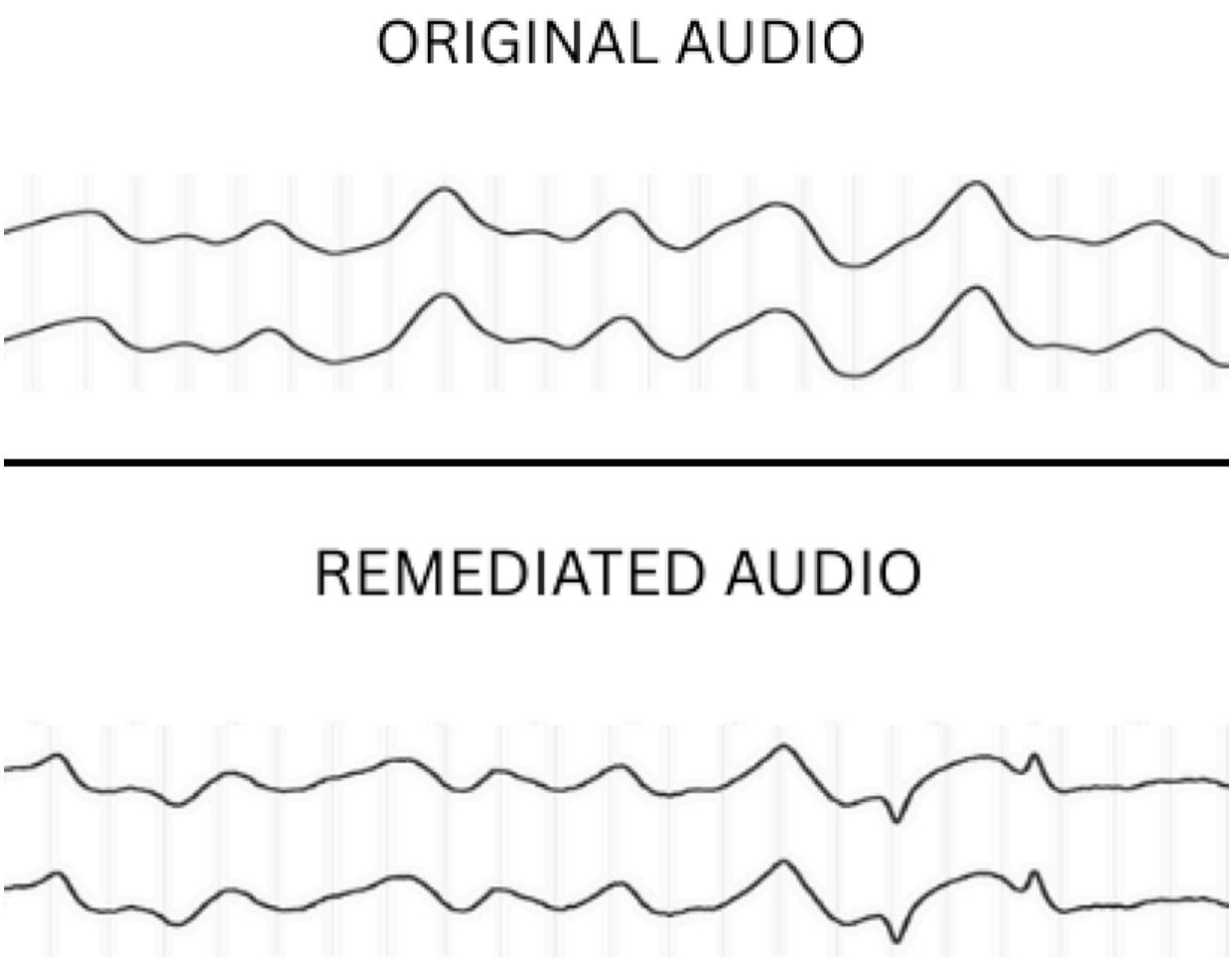
For Boards of Canada, the process of remediation and degrading sound design is an integral part of the composition process. In addition to sampling old analog media, they record longer pieces of their own music, print them through magnetic tape and cheap

microphones, and then re-sample the music as though it were someone else's (Figure 4).

There is a term in electric guitar design called relic'ing (i.e., to make something seem like a *relic*). Guitar companies like Fender and Gibson will occasionally manufacture a line of guitars and manually scuff them up so they come from the factory looking as though they are decades old——complete with wear patterns consistent with years on tour. I return to this idea often when I think about Boards of Canada or Team Sleep or my own work. Rather than marring the finish of a guitar to emulate age, producers mar the quality of their audio. While there is some controversy about relic'ing in the electric guitar community, it is a common enough and respected practice in the sound design and music production world.

Figure 4

Close-Up of Grundig Stenorette's Effects on Audio



Note. The "thousand years' grain" that a tape machine like a Grundig Stenorette might contribute to an audio signal coupled with distortion caused by amplifying circuits and vacuum tubes adds a scratchiness to the audio that is audible. That warm-yet-jagged quality can be seen in the waveforms that represent the sound.

While I do not own an E-mu Systems SP-1200 (original models are prohibitively expensive due to their age and rarity (someone recently offered me a later model for nearly $5000)), I do own a Grundig Stenorette and many other odd devices meant to record audio to magnetic tape, and I do use these to print audio to achieve relic'ed sounds. For the purposes of this writing and in full transparency, however, I created the above images of remediated audio using software rather than hardware. This is to say, rather than pass the audio from an actual record or synthesizer through an audio sampler or tape machine, I used software to emulate the sonic qualities of these remediating devices to show changes in the audio waveforms. Over the last quarter century, music production software developers have offered more and more of these audio "plugins" (i.e., software that runs inside of DAWs or as standalone applications that function as an audio effect or virtual instrument). A plugin called "Vinyl" by the audio software company Izotope was one of the first salvos of this intentional "lo-fi" aesthetic, being released in 2001. (Figure 5)

Figure 5

Izotope "Vinyl" Plugin



Note. Notice the plugin's ability to allow users to adjust the fidelity of records made in different decades, the amount of simulated machine noise (mechanical and electrical), the amount of simulated dust on a vinyl record, and the amount of pitch warp often found on physically warped records and worn-out phonograph motors and belts.

I downloaded Vinyl sometime in the mid-2000s. Disenchanted with the crystalline, squeaky clean timbre of virtual

instruments offered by DAWs at the time, I sought effect plugins that reincorporated some of that grit, pitch modulation, and distortion. Over time, more and more companies would develop similar relic'ing plugins with expanded capabilities. Many of these plugins emulated the kind of audio degradation that one might encounter on a VHS tape, a cassette tape, an old sampler, etc. (Figure 6). While many remediating emulators focus on the sonic qualities of recording media, some, like "Speakers" (2020) by Irish audio software company AudioThing, seek to replicate the textures and tones of live audio media. Speakers allows users to choose an emulated microphone and an emulated amplifying/speaker device. Some examples of this plugin's microphones are "Toy Mic", "Telephone 1960", and "Ear Buds". The speaker devices are as varied as "Radio", "Gameboy", and "Speak and Spell". In addition to this, Speakers allows users to incorporate relic'ed/remediated artifacts through emulated distortion and (intended) unintended background noise (Figure 7).

Figure 6

XLN "RC-20 Retro Color" Plugin

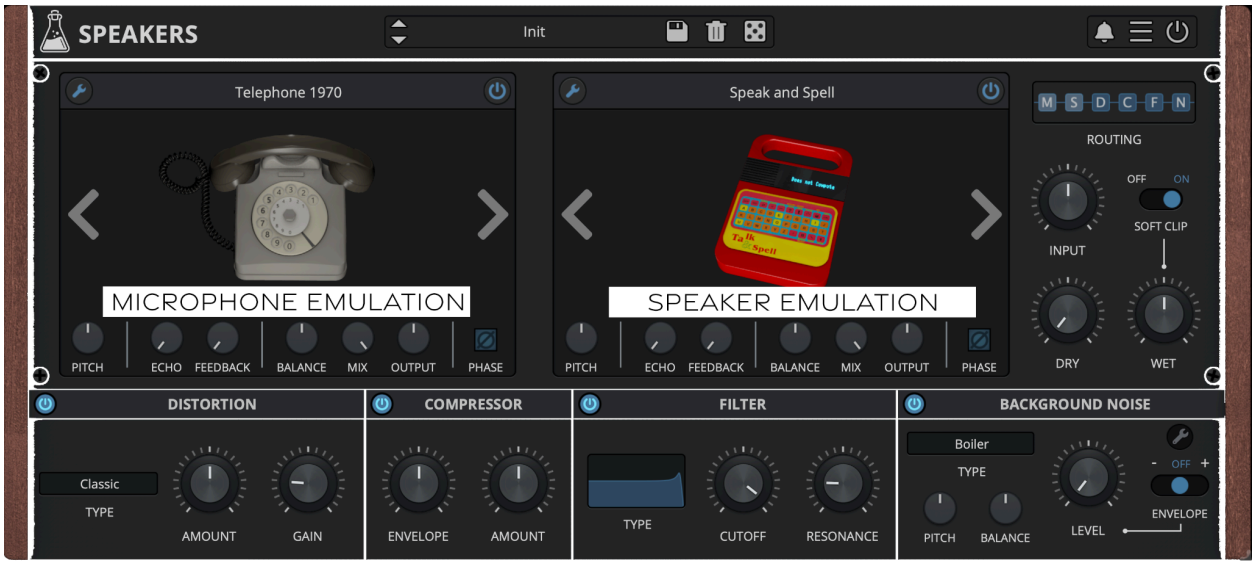


Note. The RC-20 Retro Color (2016) plugin by Swedish audio software company XLN Audio has become one of the most widely used lo-fi, relic'ing plugins. With the ability to control many of the same parameters as Izotope's Vinyl plugin as well as many other parameters consistent with physical media and hardware, RC-20 allows users to emulate a wide variety of outdated media

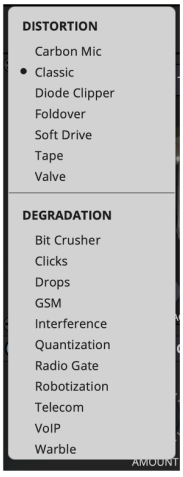
technology. These include VHS, 12-bit and 8-bit samplers, cassette tapes, and video game chipsets.

Figure 7

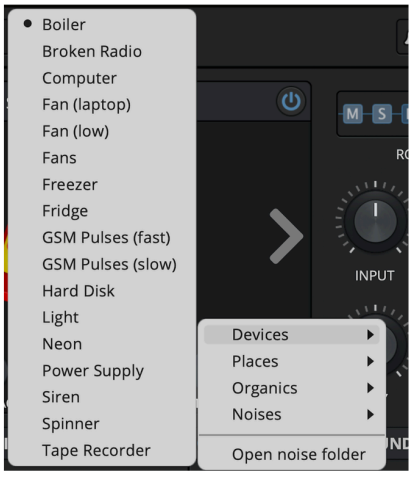
AudioThing "Speakers" Plugin



DISTORTION EMULATION OPTIONS



BACKGROUND NOISE EMULATION OPTIONS



The release dates of Izotope's Vinyl (2001) and XLN's RC-20 (2016) and all the years in between coincided with financially stable, yet relatively lean, times in my life. During this era, I delivered pizzas, worked as a machinist in a knife factory, waited tables, and worked at a liquor store while getting my Bachelor's degree. At that time, there was a financial threshold of access to lo-fi, remediating plugins, and being able to afford legendary, vintage samplers (e.g., the SP-1200 and the Akai MPC2000XL) was out of the question for most bedroom producers. Izotope's Vinyl has always been free to download, so that was many producers' plugin of choice. The introduction of RC-20, originally priced at $99 with regular sales which dropped the price to around $50, coincided with and contributed to the rise of a genre which had been slowly growing in the 2010s: lo-fi hip hop.

Similarly to the Team Sleep demos and *Geogaddi*, the growing number of lo-fi hip hop "beat tapes" available on the internet had a profound impact on my own music production. Before these beat tapes became the go-to soundtracks for undergrads studying in their dorms——and long before they were ever-present background noise in corporate work environments——lo-fi hip hop was a moody, DIY genre. Often accompanied by anime still frames or stylized drawings of rainy Japanese streets, these beat tapes were typically uploaded to YouTube with titles like "RAINING IN

OSAKA (Lofi HipHop)", "MIDNIGHT DRIVE", or "stzzy. - beats to sleep to (lofi hip-hop mix)". The inconsistent text spacing and use of unicode symbols were intentional. They were rejections of typical YouTube and Spotify naming conventions and, perhaps even to a greater extent, resistance against the easy accessibility of media through search features. You just had to know where to look. YouTube channels like The Bootleg Boy and STEEZYASFUCK (STEEZYASFUCK, n.d.; The Bootleg Boy, n.d.) regularly uploaded mixes that each featured multiple lo-fi hip hop artists——their songs all tied together with the sound of rain or vinyl crackle, ostensibly added by the uploaders. Eventually, these uploaders began releasing artists' complete solo beat tapes.

Early lo-fi hip hop has a few nearly ubiquitous tropes: the aforementioned anime or Japanese stills (these were also sometimes *Simpsons* still frames or images of a forlorn Tom (of *Tom and Jerry* fame) smoking a joint), the sounds of rain or vinyl crackle, a verbal sample from philosopher Alan Watts, and a particular sonic quality. The sound of early lo-fi hip hop is unmistakable. It uses samples and drums that are slightly out of time——sloppily played or hastily programmed, harkening back to 1990s-2000s producer J Dilla's "drunk funk" technique. Many tracks feature a Fender Rhodes electric piano and frail, quiet drums. The pitch of samples wavers by means of a magnetic tape

and tape player flaw called wow and flutter. This flaw is often emulated using RC-20 and other relic'ing plugins.

From 5th grade band class through high school jazz and classical ensembles——from pirated Team Sleep demos and *Geogaddi* to The Bootleg Boy livestreams——from middle school bedroom cassette recordings to early fumblings in Acid Pro to teaching music production at the college level——I have imagined music not as a linear progression toward innovation. It is instead a series of deepening relationships, each becoming more complex and interconnected over the years. I still hear influences of *Mad Blunted Jazz* in the beats I produce today, and the title track brought me closer to Sade. I still own the Roland SP-303 sampler and load it up with samples to get that special sonic quality that only that machine can produce. And the SP-303, if you know what you're doing, can sound a little like an SP-1200. Suddenly, lifeless piano chords written in Ableton Live (my DAW of choice since 2010) come alive with that ringy, crunchy, lo-fi sound that brings me back to hearing Team Sleep for the first time. I print vocals from folk songs I write through a Yamaha 4-track tape recorder. I send audio through the time machine——both the time machine of materiality and media and the time machine of my own memories and connections. Each time I do, I strengthen the connection between everything that goes into my

music making. This is how I ground my music in the material and in the spiritual.

The Death of Lo-Fi

If you look at The Bootleg Boy's YouTube channel these days, you can tell he's fighting a war. Just a year ago, he uploaded lo-fi mixes with titles like, "happier alone." and "nagoya rain."——standard lo-fi fare with its dramatic, melancholic sounds and accompanying images. Starting in Summer 2025, however, The Bootleg Boy's videos' titles have changed. Among them are "take me back to when lofi hip-hop sounded like this." and "this is the lofi hip-hop we missed…". The descriptions under each video list every artist and track featured in the beat tape, which has always been The Bootleg Boy's and Steezy's M.O.. If you scroll down past these attributions, however, the encroaching threat to lo-fi hip hop becomes apparent. Each video's description, beginning with the June 17th, 2025 upload "another rainy lofi hip-hop playlist.", contains some variation of the phrase "This music is NOT AI, it was made by real artists."

The growth of lofi hip hop instrumental music as a calming background genre, especially good for long work-from-home days and laundry folding, has seen the rise of 24/7 lo-fi streams on YouTube. One of the earliest of these streams was the now famous

“Lofi Girl” channel (originally named “ChilledCow”) with the often co-opted title “beats to relax/study to" (Lofi Girl, n.d.). ChilledCow streamed their first Lofi Girl video in 2017. The stream was simple: attributed-artist lo-fi beats with an animation of a high school or college-aged girl drawn in an anime style endlessly studying while a cat lolled on the window sill.

As a background genre, the subtle intricacies and human touches inherent in these early lo-fi hip hop beats are often overlooked by casual listeners. What work-from-home employee is listening for slightly out-of-time drums and warm tape distortion when there are spreadsheets to complete? On a platform that pits channels against each other in a battle for the attention (or at least the streams) of its users, an ambient YouTube livestream that never stops is a good way to pump up streaming numbers. But there are only so many producers——only so many music production nerds like me in their bedroom studios chopping up anime samples and running RC-20 on their Rhodes electric piano plugins. It took me half of my lifetime to be able to make music like this. Now it only takes a Suno subscription and a basic knowledge of YouTube live streaming to make passable music for the typical purposes of lo-fi hip hop beats.

I first became suspicious of AI's encroachment into the genre in 2024. It wasn't even the music that tipped me off. As generative AI platforms like Midjourney and Dall-E became more widely used, I began to recognize a consistent style in these platforms' images. It became easier to tell when an image was AI generated. There is an elusive quality to these images——a kind of uncanny sheen, a perfection or perfect imperfection, a performative reality. One afternoon at my sister's house, she had a lo-fi channel playing on her TV. She claims that her dogs (my nephews) like it, and she may well be right. Looking at the peaceful image of the YouTube video——a golden-hour lakeside cabin with ethereal, out-of-focus dogwood seeds (or some other floating ephemera) and the requisite lazy cat napping on the railing——I became convinced that it was an AI-generated image. This immediately made me suspicious of the music. I turned it up to see if I could detect any of the errors, the serendipity, the grain of early lo-fi. Nothing. It was clean as a whistle. Innocuous, pretty, calming, flawless.

There had admittedly been a bit of an aesthetic creep within the anthropogenic lo-fi hip hop genre over the last decade or so. What began as uploads of sloppy beats, clearly played by hand on samplers and MIDI controllers, had slowly drifted toward glossy, thoroughly unobtrusive 24/7 live streams with few discernable features from track to track. I had felt

for years that lo-fi hip hop beats were beginning to occupy the same cultural space that smooth jazz or Muzak did in the 1980s and 90s. It had become almost *exclusively* background music. With so many of us working from home during the COVID-19 pandemic, I felt that lo-fi hip hop streams served primarily to drive away the uneasy silence of the home office. It was no wonder to me, then, that increasing demand for unique lo-fi live streams would inspire YouTube channels to look for quicker, easier sources of music.

The Evolution of Crates

When I was a child, my grandmother owned a tiny restaurant called the Hi-Fi Grotto. It was 1950s themed with a jukebox, checkered floors, "boomerang" patterned formica tables, and a foosball table. Located across from Gresham High School, it endured spring and neap tides of teenagers——their frequency determined by off-campus lunches, track meets, and school dances.

My mother says that the restaurant got its name because, "A grotto is like a sacred place." And she reminds me that the "Hi-Fi" refers to music. A sacred place for music. This seems fitting since it was in the backroom of this restaurant, while my mother and grandmother served hamburgers and root beer floats out front, that I dug through the famous duffle bag. Other

times, my mother and her assistant coaches would choreograph on the checkered floor after hours with a little cassette boom box——the three-inch speakers and laughter filling the room with sound. The Hi-Fi Grotto served milkshakes (a favorite among spring-term high schoolers), and the cartons of Dairigold ice milk my grandmother used to make these milkshakes arrived in blue plastic crates, the ones with the diamond shaped holes. While Dairigold expected to get these crates back after delivery, naturally my grandmother kept a few for herself. A milk crate is great for storage after all. And, iconically, milk crates are regularly used to store vinyl records. I have vague memories of flipping through the records stored in a blue milk crate in the back of the Hi-Fi Grotto. *Bark at the Moon* by Ozzy Osbourne (1983) and (regrettably) the *Ten LIttle Indians* 45rpm single by Peter Pan Players and Orchestra (1963) come to mind.

Music producers who sample old vinyl records are sometimes referred to as "crate diggers". Refer to nearly any picture or video of a seasoned (read: old school) sample-based beatmaker in their studio, and you're likely to see a few milk crates containing records. If you're lucky enough to find a great hole-in-the-wall record store, among the wooden racks and cardboard boxes, there's bound to be milk crates filled with old LPs. After the years of poring through my *Twilight Zone* DVDs, VHS copies of old horror movies, and field recordings of found

sounds in the streets of Portland, I finally borrowed my first DJ turntable in 2014. It was my friend Jeff's Stanton STR8-100 (often pronounced 'Straight One-Hundred'). I cleared off my desk, ran the cords——left channel, right channel from the Stanton to the mixer——left channel, right channel from the mixer to my computer——then headed to my favorite record store.

I had discovered this particular record store maybe a year prior. I won't give the name here. A crate digger always gatekeeps their best hidden-gem record stores. You won't find the rarest records there. They don't stock those foreign import records or b-movie soundtracks that crate diggers love so much. But this record store is *random*. You never know what you'll find. It requires true digging——flipping through hundreds and hundreds of records——to land upon a cover that catches your eye. What each crate digger looks for in a record jacket is different, but there are different theories about which album art portends good musical samples. Some diggers look for stylized pictures of jazz combos, certain record labels, nudity, or good mid-century typography (I'm in the latter cohort).

But it's a risk. You pay good money, lug five or ten records home, and listen through them. Maybe you'll find one or two 4-bar phrases that stand out. Maybe more. Maybe none. You record them into your DAW or sampler, chop them up, and get to work trying to make something unique. Then comes the optional

(yet beneficial) task of trying to layer that sample with another sample. Getting the pitch right might require you to slow down or speed up the record (a benefit of DJ turntables), or you might need to work some time-stretching magic in your DAW.

Ok. So you might have made two good instrumentals with your haul——two good instrumentals when a stack of ten standard-weight records in standard jackets weighs around 5.5 pounds and takes up 288 cubic inches. Now you have to store all of those records. We're gonna need a bigger milk crate.

Enter "e-digging". In the first half of the 2010s, I spoke with a lot of beatmakers, and nearly all of them denied that they were e-digging. This is the process of looking for musical samples on the internet. As YouTube continued to gain in popularity, and as archival websites like archive.org kept expanding, the wealth of easily available, digitized old records, documentaries, movies, speeches, and PSAs became too big to ignore. Why go through all the trouble of spending exorbitant amounts of money, digging through old media all day, and toting the lot back home only to find that there were no good samples and that you had to store these dusty records? In the internet age, diggers took to their keyboards. In a few short years, countless e-digging YouTube channels came on the scene. They are still around and are a rich source of sample

material. The channel owners upload audio from sometimes extremely rare records. These are records from all over the world and from all genres. In a single afternoon, someone e-digging can find a drum sample from 1960s Poland, a guitar sample from 1970s Iran, and a vocal sample from 1990s Japan. By the mid 2010s, e-digging had become a regular practice; it was too hard to resist the sheer volume of material. Now, hardly anyone I know claims they don't e-dig. No amount of purism can counteract the convenience.

As an artist who has primarily used musical samples as significant portions of my compositions, issues of source, copyright, accessibility to samples, and control over the types of samples one can find are central to the process and aesthetics of music making. For over ten years, e-digging on YouTube, archive.org, and the occasional Telegraph dump has been the cornerstone of my practice and the practice of many of my peers. While the artists I have known over the years have typically gatekept their sources——never revealing the YouTube channels that upload the music they sample, not mentioning a rich vein of 1970s public services announcements uploaded to archive.org, etc.——our sample-finding tactics become obvious over time. At the height of my e-digging days, I felt a race to release new music very quickly because there became an increasing threat of another producer releasing a track

prominently using the same samples I had been working with. This is because there are a limited number of channels through which to locate samples, and there are a limited number of sample-source records that have been produced.

Copyright is not as big of a concern for small-time producers as some think, but it does hang like a spectre over our heads. There are famous cases of incredibly successful artists using samples in hit songs. The most well-known of these is likely the case of "I'll Be Missing You (feat. Faith Evans, 112)" by Diddy (1997). The track is built almost entirely around a sample and an interpolation (i.e., a new performance of an existing song) of "Every Breath You Take" by The Police (1987). Sting, now listed as one of the track's songwriters, sued Diddy for his use of the track, citing the fact that Diddy did not clear the sample. If he had, Sting would likely have gotten around 25% of the song's royalties. Instead, Sting receives 100% of the song's royalties and nets around $5000 every day because of this. Other notable examples of lawsuits stemming from sample disputes include The Verve's "Bittersweet Symphony" (1997) sample of "The Last Time" (1965) by the Andrew Oldham Orchestra (which itself is a cover of a 1965 song of the same name by The Rolling Stones) and Vanilla Ice's use of a sample of "Under Pressure" (1981) by Queen and David Bowie on his 1990 track "Ice Ice Baby". Both of these examples also resulted in massive

transfers of song royalties and additions of the original music artists to the songwriting credit list.

The producers I know and I, however, are under very little threat of being sued for using samples, simply because we do not sell nearly the number of records as these globally recognized artists. Which major label is going to sue for a piece of a record that nets $2000? There is, however, a tradition of manipulating the samples we use in order to keep them from being detected. It's a kind of prophylactic measure against running into these legal and financial issues, no matter how unlikely they are. Sample-based music producers often chop their samples up into short, nearly unrecognizable sections and rearrange them in such a way that they comprise something musical yet unidentifiable. Changing the samples' pitch, layering them with other samples, and adding effects such as distortion and reverb are other ways that artists obfuscate their source material. While this practice has been both a legal maneuver and an aesthetic choice for decades (see: J-Dilla's use of a 10cc sample in "Workinonit" (2006) or Kanye West's use of "I Want You Back" (1969) by The Jackson 5 in his beat for Jay-Z's song "Izzo (H.O.V.A.)" (2001)), many sample-based artists from the mid-2010s to today have increased efforts to hide their use of copyrighted material in order to avoid detection by streaming services' copyright enforcement algorithms.

Accessibility to and creative control over the samples we are able to find as music artists shape our sound and have an impact on the types of music that become prevalent as well. A clear example is the trajectory of the microgenre Vaporwave. While it has its origins in the late 2000s, Vaporwave, a sample-based microgenre, saw its popularity grow in the mid 2010s. This genre, rooted in 1980s and 90s nostalgia and criticism of bland corporatism and consumerism at the end of the 20th century, is a plunderphonic movement in internet music history that relies almost entirely on samples. Its mid-2010s sharp rise in popularity coincides with an archive.org upload of 56 department store cassette tapes. In 2015, former K-Mart employee Mark Davis uploaded the chain's in-store music tapes to archive.org in a collection titled "Attention K-Mart Shoppers". The tapes had been used in the late 1980s and early 90s as background music in K-Mart stores, and their sound ranged from easy listening instrumental music to releases of popular songs (Vapor95, n.d.). Davis had surreptitiously taken the tapes from his workplace decades earlier and digitized them in 2015, making them available for free to anyone with an internet connection. The haunting, nostalgic quality of these physically well-worn cassettes along with their direct ties to 80s and 90s consumerism made them perfect fodder for Vaporwave artists and

also contributed to Vaporwave subgenres like mallsoft and barber beats.

Another example of the influence of digitization and access on sample culture is the rise of "library music" reissues starting in 2020. The world of library music is a complex one. Its name describes a method of distribution and an impetus for consumption rather than a genre. Library music was used primarily in the 1960s, 70s, and 80s in television and film. Library music companies acquired the rights to generic, often instrumental music from many genres (e.g., funk, electronic, rock) and licensed them to film and television studios——often more independent or lower-budget ones——for use in productions. Because these studios were typically unable to hire composers for original scores or license popular songs, library music was an elegant solution. The music was tailored to moving pictures with song titles like "Lazy Sunday", "Sky", and "Call of the Sea". A very limited number of library music records were pressed, and they were given to music directors in order for them to choose which songs to license.

Because each record was pressed a limited number of times, the records have historically been incredibly difficult for the average consumer to get their hands on. The music on these records was often composed by famous artists who worked under pseudonyms to avoid violating contracts, and as these

world-class instrumentals became more accessible through sporadic uploads to YouTube, they became incredibly valuable and useful for sample-based artists (Patrin, 2014). Access was, of course, the biggest challenge for sample-based producers in working with library music. Some YouTube channels like Sonne Immage, Alex B, Adventures in Silence, and Ricardo Maraña started uploading library music in the early 2010s, but these uploads were few and far between.

The 2020s, however, saw an uptick in official reissues of the original library records on vinyl. This meant that the music, and therefore the samples, were available on physical media to many more people, and digital uploads of these reissues soon followed. This has had a noticeable impact on a resurgence of 1990s-era inspired, sample-based boom bap. As a subgenre that has its roots in sampling records from the 1960s, 70s, and 80s, a fresh wellspring of new mid-century samples, typically without vocals, was a massive boon for producers in the 90s and coincided with the resurgence of boom bap practices in both popular and underground music (Future Audio Workshop | The Return of Boom Bap, n.d.).

The evolution of sample-based practices, especially as it is influenced by access, is something I have witnessed firsthand as an artist in the field for over twenty years. I have seen my own practices and my own aesthetics change and be influenced by

what is available to me culturally, technologically, and educationally. From stock samples to DVD boxsets and field records to YouTube and archive.org uploads, my personal artistic practices have been influenced as much by digital access as by my own growing abilities and aesthetic choices.

My experience with sampling music over the years has taught me more and more about the function of relationships and life stories within the artform. Sample-based music has many of the same relationships as other musical artforms; we are influenced by the relationships we have with other artists we know personally——their sounds, processes, and paratextual expressions (e.g., monikers, album art, demeanors)——and we are influenced by broader trends within genres and microgenres. Sample-based artists are, like any other musician, also in dialogue with other artists, both sampled and not. We are also in relationship with access. I have spent much of my life in both professional and community service navigating our relationship with technological access. As new software and hardware become available, I do my best to understand it in order to use it, of course, but I also am heavily involved with teaching it. As someone who once paid five bucks for a pirated copy of a crude DAW like Acid Pro only to import my own samples using borrowed sound cards and cables and microphones, I understand the challenges of access. Through education at my nonprofit music

production school, Midschool, at Mt. Hood Community College as an electronic music production instructor, and through personal lessons and conversations, I have tried to close gaps in access for new producers. Our relationship to technology——sometimes expensive, sometimes requiring the proper guidance and plenty of practice time, sometimes unknown to us until someone tips us off to a new release——has great influence over the music we make——the music we *can* make.

And of course our relationship to raw musical sample material is significant. As K-Mart instrumentals and library music sources grow on the internet, sounds change. As copyright fears and overuse of certain samples influence how and when (and if) we sample a piece of music, sounds change. The broad and multifaceted culture of sample-based music, then, becomes beholden to the tides of capitalism, power, and (it would seem) chance.

As both a curiosity and as an investigation into the possible solutions of some of the issues a sample-based artist faces, I began experimentation with using AI-generated music in February, 2025. I had heard whispers from other producers that Google's MusicFX, Udio, and Suno could create instrumental tracks from text prompts and that these pieces of music were nearly indistinguishable from anthropogenic tracks. Furthermore, it seemed that AI-generated music existed in a legal gray

area——a copyright liminality that may solve the problem of clearing samples. My skepticism gave way to curiosity, and I set out on a mission: to sample an unsampleable song.

Chapter VIII

Pre-Study

[Note: All prompt text provided herein is transcribed exactly how I entered it into Suno, complete with grammatical errors and general hastiness.]

In early February, 2025, I began using Google's MusicFX, a generative AI platform that produces musical recordings, to generate samples. It was a revolutionary platform for its time (technology moves so fast that "for its time" is an appropriate caveat for an AI platform's year-old iteration), and I was blown away by its ability to make anything that might be even close to sampleable. I decided to press it, prompt after prompt, sometimes the same prompt over and over again, sometimes adjusting phrasing, to produce something as close as possible to one of my favorite songs: "Naima" by John Coltrane (1959). This modal, post-bop jazz ballad has always been one of my holy grails as a sample, and its cool, mid-century composition and production are just the kinds of elements that would make a great base for a beat. I have always been drawn to making slower, jazzier beats——the kind of moody trip hop instrumentals that harken back to my first introduction to the genre through *Mad Blunted Jazz*.

Obscurity, however, has become more and more valuable in the beatmaking community. Finding obscure samples and further obscuring them through production techniques solves a number of problems for sample-based beatmakers. First of all, it lowers the risk of exposing that a beatmaker is sampling the same track as another producer. It's a minor faux pas to hear the same sample on another producer's track. If their and your track are released around the same time, it's clear that both producers have the same source——they typically subscribe to the same YouTube channels. If you release a track using a sample that another producer had released years prior, that is also a problem. It shows that you do not have your ear to the ground, you don't listen to others' music, or you can't discern a sample. It is, therefore, best to find something obscure and process it and layer it in a way that makes it even harder to identify.

Obscurity also somewhat solves the copyright issue. The muscle behind Coltrane's estate (or James Brown's, Detroit Emeralds', Jackson 5's, etc.) is substantially more powerful than, say, the litigating power of library artists such as Jean Michel Hervé or Sven Torstenson. The obscurity of the K-Mart tapes' commissioned, in-house music makes the likelihood of getting sued even lower. If, then, obscurity is one of a

producer's goals (which is not always the case), sampling a popular, beloved song like "Naima" is a no-go.

But maybe I could find something close——something that could scratch that itch——something that could give me the same feeling as "Naima" without incurring the judgement of my peers——the judgement of copyright courts. I searched for a way to launder the culture that gave birth to "Naima", washing it clean and rendering it legally acceptable for my own use. Being wholly new to prompt-based generative AI, I started as simply as I could:

"Give me a song like 'Naima" by John Coltrane"

MusicFX pretended to think for a bit before displaying a white box at the bottom of the screen with the simple phrase:

"We couldn't create what you asked for. Please review our FAQ or try a different prompt."

"MusicFX and MusicFX DJ features precautions to protect artist voices and styles so certain queries that mention specific artists or include vocals will not be generated."

-The FAQ

So I hinted at what I wanted.

“Give me a slow post-bop track.”

“Write a slow, sad post-bop track.”

“Create a slow, sad modal jazz/post-bop track.”

“Create a slow, sad modal jazz/post-bop track featuring a mournful tenor saxophone, piano, and soft drums.”

“Create a slow, sad modal jazz/post-bop track featuring a mournful tenor saxophone, piano, and no drums.”

“Create a slow, sad modal jazz/post-bop track featuring a mournful tenor saxophone, piano. Seriously no drums.”

“Create a slow, sad modal jazz/post-bop track featuring a mournful tenor saxophone, piano. Absolutely no drums or percussion at all. No drums.”

Results were varied. Each time I wrote a prompt, I felt I needed to add more detail. MusicFX clearly did not understand that I wanted Naima. It understood broad descriptions of genre and tempo. No matter how many times I told it to omit an instrument (especially drums), it rarely complied. I never did get Naima.

But what I did get was something sampleable——something that, if I ran across it in a record store or tiny YouTube channel, I would chop up, add drums, and layer. Yet, the music it returned had that odd sheen——that perfection and perfect

imperfection I had sensed in late-stage lo-fi hip hop sounds and visuals. MusicFX seemed aware of the sentimental jazz of the 1950s, but this track was clearly made in 2025.

Chapter IX

Experimental Design

I approached this study with all of this in mind—the bootleg software, the DVD collections, hours in record stores looking for LPs with promising album art, e-digging, relicking, *Geogaddi* and the Team Sleep demos, and the months-long attempt to replicate "Naima". This was a creative experiment. I employed a practice-as-research approach in order to answer my research questions:

RQ 1: How do the ethics and nature of human→human music sampling apply to and inform us about the ethics of human→AI sampling sampling?

RQ 2: Does the process of AI→human sampling (i.e., humans generating samples to use in their own music) restore some of the dialogic nature and humanity in the music and establish a new ethics

RQ 3: What creative and cultural elements can human artists introduce that makes AI→human sampling feel more dialogic, cultural, and human?

I accomplished the process of AI→human sampling by generating full songs using AI platform Suno's text-to-music generative AI platform. I spent six months, July-December 2025, generating over one-hundred tracks on Suno. I downloaded the tracks that I felt yielded the best samples for different kinds of music, and I used them as raw material to create new music. Employing multiple sampling, sound design, and compositional techniques, I explored the possibilities and limits of this process.

Depending on who you ask, and I have asked a sizeable number of sample-based artists throughout my life, the sampling world is a wild place: according to many of my producer friends, there are few (if any) rules. This is how I approached my process. Itself being already arguably clandestine, the methods by which an artist comes by their samples are not always the most savory. Understanding that the premise of my experiment is, itself, ethically dubious, I acquired samples in multiple ways. For some tracks, I wrote and rewrote prompts repeatedly in much the same way I did with my early "Naima" experiments. Other times, I asked ChatGPT to write me prompts specifically for Suno that might produce a track that sounds like a specific track.

“Write me a prompt for Suno that would yield an instrumental track that sounds as similar as possible to “Dawn Chorus” by Thom Yorke. Remember, you cannot use the artist or song names in the prompt. Make sure to mention resonant synths, a slow tempo, no drums, and an overall doomer vibe. But I don’t want synthpop”

To which ChatGPT replied:

“Warm analog synths with long discordant chords and lots of very resonate jagged analog texture, Melancholy chords, Lots of diminished chords, minor chords and 9 chords, Virtually no melody or rhythm——just pure doomer vibes, No drums or backing instruments, Very slow tempo, It feels like lamenting the end of humanity, It feels more like a funeral or a seance, Very grim, -synthpop”

When consulting with ChatGPT, I would report back after Suno generated a track if that track was not what I was hoping for. I found early on that, at least with the number of iterations I felt was appropriate, there was a limit to the possibilities——a limit to Suno’s understanding of specific instructions. Rather than further refine my prompt skills or press ChatGPT harder for better and better prompts, I treated the process similarly to how I have always treated sampling: I

worked with what I got. When digging for records or clicking through the latest offerings from a YouTube channel, it is impossible to get *exactly* what you want. That is, in my opinion, a virtue of the artform rather than a limitation. It pushes sample-based artists to make music they may never have considered before. This will play a significant role in my experiments and findings later.

The world of generative AI music as a source of samples was (and still is, relatively speaking) new to me. Having any direct say in the generation of the samples one uses is novel to the artform outside of groups or artists who sample themselves (e.g., Portishead, Madlib, Dj Shadow, etc.). While I decided to take a fairly unstructured approach in terms of sample generation, I set out to create four original (?) tracks employing four distinct methods of music production and composition:

1. Traditional sampling
2. Ambient/sound design
3. Collaborative songwriting
4. Experimental sound design

I chose these four methods because, while there are certainly similarities in the processes and workflows, they explore and

inquire in different ways. Approaching my questions with different modalities allows me to triangulate my findings (Nelson, 2022; Haseman, 2010)

While the term is definitely loaded and debateable, I conceived of **traditional sampling** as an artform with established craftways that are in dialogue with other (both historical and contemporary) sample-based artists. Specifically, traditional sampling is a part of the greater hip hop/trip hop/dub traditions. Because there is no absolutely standard process here, it is difficult to describe what the parameters were. I relied on my experience as a producer who has made this kind of music for most of his life to guide what I felt was in the tradition——both through process and by way of sonic qualities——of sample-based hip hop and trip hop. This included the use of samples of longer musical phrases (1-4 measures), layered boom bap drums, heavy audio compression, and the interaction of multiple samples. Furthermore, the finished track that employed traditional sampling methods did not feature any live instrumentation. It did, however, feature 100% live performance (i.e., all of the samples were played live on hardware rather than arranged in a DAW). While this does not necessarily reflect a hard-and-fast rule of the sampling tradition, it did force me to engage with samples on their own,

at the mercy of what was available and of my own abilities to manipulate them.

This was a necessary jumping off point for me. While I have made many genres of music using countless methods throughout my artistic career, the process of layering longer music samples and adding drums and effects has been a consistent and regular practice. There is very little risk of reinventing the wheel here. (And, because of this, there is also very little chance of the reward of reinventing the wheel.) I am able to let my ears and hands do the work without having to overthink the process.

Creating an **ambient/sound design** piece was the rational next step for me. This process employs many of the same techniques and technologies as traditional sampling, but it is more embodied. It also requires more experiential creation. With traditional sampling, it is possible to find the right section of music, and I know intuitively how it will sound, how it should be processed, and what other samples might be interesting to layer it with. Creating an ambient piece with a focus on sound design, however, required me to actually *play* the music. By running samples through different hardware samplers, 4-track tape recorders, and audio effect pedals, I was able to hear what I *had* versus what I *wanted*. I was (and this is the most important element in my experience) also able to adjust how I *physically played* the sounds themselves with these pieces of

hardware. While the static adjustments I made to equipment settings (e.g., gain, reverb decay times, reverse playback on samples, etc.) were crucial to the sound, how I played them in real-time ended up having an even greater effect on the final product.

Collaborative songwriting, while it built upon the artistic processes of the previous two methods, required a markedly different set of skills and operations. In addition to my lifelong experiences involving purely sample-based music, I have also been a songwriter. Put simply, I mean to say that I have written songs with lyrics, vocal melodies, guitar, piano, bass, etc. I have performed and recorded these both solo and with small ensembles. I approached this portion of the experiment similarly to how I have approached collaborative songwriting with other musicians. While Suno did provide samples (that I brought directly into my DAW rather than processing through hardware samplers or analog media), its contribution was as much about its musical composition as it was its sound design. I was forced to engage with the chord progressions and the melodies it provided and add my own live instrumentation, lyrical composition, and arrangement.

Lastly, my **experimental sound design** experiment focused on pushing the unique timbral and glitchy limits of generative AI music. Rather than trying to fit Suno's offering into my

well-worn paths of music making, I listened closely to how generative AI music falls apart when its parameters in the prompt portion of creation are stress tested. From that place, I looked for musical moments——moments where I, as a producer and as a human, found something rhythmic, melodic. I also looked for the role of human participation in the music making, both as a creator and listener——as a heart and as a mind and as a brain.

These methods are, by no means, an exhaustive list of the ways that generative AI music can be used to create new music. Since the beginning of my experiments, Suno, along with other platforms, have expanded their capabilities. With Suno specifically it is now possible to upload a completely original recording and have Suno remix it, adding all new instrumentation, isolating vocals, rearranging the piece, and applying the lyrics to an entirely new musical backing track. I believe that, while there are already new uses for generative AI music, and while there will undoubtedly be more advancements in the technology, my experiments address foundational elements of the process of musical collaboration with generative AI. Because of this, I believe that the scope of my methodology will remain relevant throughout future technological developments.

Post-qualitative practice-as-research and autoethnographic methodologies take on a secondary project. The first is, as with any methodology, to answer research questions. Included within

this endeavor is the justification that the methodology chosen is, in fact, the most appropriate for addressing these questions. The second project of post-qualitative methods is to make their scientific soundness clear——does this method have rigor, validity, reliability, repeatability, and reflexivity? What is its theoretical contribution? Yes, accounting for these things is necessary with all scientific inquiry, but with a methodology that is rooted within oneself——within a phenomenological, reflexive, and subjective perspective——it is important to permeate that membrane between the self and the reader.

Given my theoretical framework and careful connection between my past and present experiences as an artist, I believe that this methodology exhibits **rigor**. Because these experiments were conducted over six months, and because they are supported by over two decades of experience in the field, this methodology also exhibits **validity**. As with any autoethnographic study, the question of **repeatability** can be a difficult one. Of course, no other researcher can be expected to get the same results from their experiments, no matter how closely they mirror my own. Furthermore, no other researcher will have the same past experiences as I have. I submit, however, that this study's transparency (i.e., my transcription of my internal and external experiences throughout the research and throughout my lived

experiences) lays a groundwork for other artists and researchers who have their own positionality to conduct similar experiments. They may find that they come to similar conclusions. It is precisely this **reflexivity**, put on full display herein, that allows for this repeatability. Furthermore, reflections on my own past experiences, present experiences, actions in the physical world, artistic impressions and processes, etc. exhibit reflexivity in this study.

These experiments are, in some ways, dissimilar from both traditional quantitative and qualitative studies in that they are also bound to the fate of artistry. It is a common trope that for any piece of art that an artist deems complete (or at least fit to be perceived by another), there are tens (or hundreds) of scraps languishing on a hard drive or scattered across the proverbial cutting room floor. This study is no different. In order to make my research accessible to the reader, I have omitted descriptions of a number of these false starts. It is less common to see omissions like this in traditional research. I believe, however, that the inclusion of *some* of these failed attempts is necessary. Insofar as these artistic products and my perceived failure to complete them contribute to my research, they will appear in this study. Each of the four pieces described herein is beset with these "failures", and the ways that these abandoned attempts

influenced their adjacent pieces (and my own experience) will be described.

Lastly, it is important for me to note that artistic creation can often be a chaotic, slap dash process. While creating these pieces, I always tried to keep my theoretical framework in mind. But with each production modality, I dove into the work, entering the same trance-like state that attends any artistic endeavor I undertake. Because of this, my theoretical and personal reflections often happened after a piece was completed or between sessions while taking a break. Keeping faithful notes in my journal (or even scribbled on Keno slips at the bar at closing time when some idea finally came to me) has kept the work grounded. When I was printing sound from Suno to my laptop through an old sampler, I was not always thinking about Barad or Baudrillard, but their ideas met my own in the spaces in between.

Chapter X

Compositional Case Studies

Here I will describe each of the four pieces I am presenting as entries in this study. While they are described with individual titles, each section will address the adjacent experience of creating them and their relationship to my theoretical framework.

Early on in my experience with using Suno to generate samples to use in original sample-based compositions, I found myself at odds with the sonic quality of Suno's output. First, it was too clean.

> *To begin, I learned that AI music has a sound. This is not so much a compositional one (although I may find that to be the case along the way) but a timbral one. There are two primary technical aspects I can assume contribute to this sound. The first is harder to describe or identify: uncanny cleanliness and purity. Even tracks that are directed via prompt to emulate a kind of timbral sloppiness or sonic grittiness come out eerily perfect. This is not to say that AI couldn't emulate swing, syncopation, distortion, pitch modulation, etc. But it seems to do so in a predictable*

way. Even Suno's "weirdness" slider introduces somewhat expected results.

September 1st, 2025

To be clear, however, many anthropogenic recordings bear this same mark of over-polished, hyper-digital production, but AI-generated music tends to have this mark to a greater degree and in an inexpressible way. With DJ Crook's SP1200 sampler and Boards of Canada's Grundig tape machine in mind, I found myself immediately compelled to remediate these AI-generated sounds and introduce uncertainty, serendipity, degradation, and, most importantly, *noise*. I provide tables here describing all of the hardware, software, and media used in the process of remediation and the introduction of noise (Table 1):

Table 1

Description of Tools Used in Experiments

Software	**Description**	**Notes**
Suno	AI Music Generator	Suno is capable of creating entire musical recordings based on text prompts. In this study, it is also used to separate "stems". These are audio files of each individual

		instrument that comprise the recordings.
Ableton Live 10	DAW	Ableton Live functions similarly to most DAWs with the exception of its expanded live performance capabilities. It is used to record, arrange, and process audio.
Izotope RX 8	Audio Repair Software	Izotope RX is capable of removing unwanted noise (both ambient background and sudden transient noise).
Ace Studio	AI Vocal Generator	Ace Studio generates realistic singing vocals using more than 140 different voice models. It allows the user to write vocal melodies and lyrics and refine the results.

Hardware	**Description**	**Release Date**	**Notes**
Macbook Air	15-inch, M2 chip, PCIe 4.0-based SSD (1TB)	2023	This is the computer that ran all software listed above.
Zoom R8	8-track SD card audio recorder and	2011	Used as both an interface and a

	audio interface		standalone recorder for live performances. I used this to both record audio and send audio to other hardware.
Universal Audio Volt 476 USB Recording Studio	4-track audio interface	2021	Used as an audio interface for both audio recording (into the Macbook Air) and for sending audio to other hardware.
Boss SP-202	4-voice, 16-bit stereo sampler	1998	The SP-202 has unique sample rate reduction and audio effect characteristics.
Boss SP-303	8-voice, 16-bit stereo sampler	2001	The SP-303 is capable of higher quality sample playback. I typically use it both for its straightforward, high-quality sample playback and its famed “vinyl sim” effect, which adds an

			equalizer and compression to samples.
Korg Electribe ES-1	12-voice, 16-bit stereo sampler	2000	The ES-1 has a higher polyphony (number of samples that can be played at one time) than the Boss samplers. Its sample rate is, however, lower than the Boss samplers, giving it a particular lo-fi quality.
Marantz PMD221	Portable Cassette Recorder	1985	The PMD221 was originally developed as a field recorder for journalists. I use it primarily as an analog playback instrument by manipulating its pitch knob.
Fostex X-12	4-track cassette recorder	1993	This simple 4-track recorder has limited functionality. I primarily use it as an analog playback instrument.

Yamaha MT100 MkII	4-track cassette recorder	1990	The MT100 MkII has far more features than the X-12 including pitch/speed control, an equalizer, and noise reduction. I primarily use it as an analog playback instrument.
Pokketmixer	Portable DJ-Mixer	2013	A simple portable mixer used to run multiple devices into a single playback or recording input.
Califone Cardmaster (CAR2010)	Educational audio card playback device	c. 2000	The Califone uses ½" magnetic tape mounted on 8"-long cardstock. The cardstock feeds through the device while the device records or plays back. This creates a lo-fi sound with reduced frequency response and unsteady feed rates, which contribute to fluctuating

			pitch. I use this with homemade tape loops and the magnetic platter taken from a 3.5” floppy disk to create endless playback of audio textures.
Boss RC-50	Live looping pedal	2006	The RC-50 allow the user to record a section of audio with a series of footswitches and loop them. Users can also layer loops and turn them on and off.
Catalinbread Echorec	Magnetic drum delay emulator pedal	2013	This delay emulates the Binson Echorec, a delay effect unit released in 1955 that uses a spinning magnetic drum to record and repeat audio signals
Electro-Harmonix Oceans 11	Reverb effect Pedal	2018	This reverb pedal emulates many different kinds of reverb (e.g., hall, plate, spring, etc.).

Alesis MultiMix 16 Firewire Mixer	16-channel audio Mixer	2005	While this mixer has firewire capability for connecting to DAWs, I only used it as a standard mixer
Fender Telecaster	Electric guitar (single coil “lipstick” pickup)	1951 (I used one manufactured in 1998)	

Media	**Description**	**Notes**
Type I compact cassette	Ferric oxide recording medium	
Toshiba Smartmedia card	16-128 MB flash memory	Removable storage for the SP-202, SP-303, and ES-1
Internal storage	Both SSD and optical memory	Storage in the SP-202, SP-303, ES-1, and Macbook Air
SD card	64 GB flash memory	Removable storage for the Zoom R8
½” magnetic tape on cardstock	Ferric oxide recording medium	
Magnetic platter	Ferric oxide recording medium	Originally a storage medium on 3.5” floppy discs

The following case studies will list the *content input* and the *signal*. The *content input* section indicates the origin of

musical recordings and samples themselves. The *signal* section indicates the software, hardware, and media through which the audio passes.

"Etude No. 1" [Traditional sampling]

August, 2025

Content input:

AI Samples	*Anthropogenic samples*
Signal:	
Suno	*SP-303*
Ableton Live	*Marantz PMD221*
SP-202	*POKKETMIXER*

Before I began work on "Etude No. 1", I had experimented with AI-generated music as a sample source to solve specific problems or to achieve specific goals. These problems and goals were always related to experiences I had had with sample-based projects in the past. One primary issue that many other beatmakers and I experience is that we don't always find the samples we want when we want them. I have always seen this as a frustrating virtue of the artform. One may set out to make a record with a particular sonic or cultural quality in mind yet find themselves stymied by the lack of available samples. For instance, it was en vogue in the mid-to-late 2010s for

beatmakers in the Griselda-sound, coke rap, boom bap revival camp——a sprawling collection of artists resurrecting the cadence and drug-laced lyrics of 90s rappers over slow, often drumless beats——to sample music from Italian Giallo films and rare library records. Producer Daringer, a cornerstone of the Griselda record label and crew, headed up this emerging sound with sole production credits on seminal records like the *Hitler Wears Hermes* series (2012-21) and *Flygod* (2016) by Westside Gunn, *The Devil's Reject* by Conway the Machine (2015), and *My First Brick* by Benny the Butcher (2016). By the time my production partner and I, collectively known as Widowmaker, felt the influence of these artists and started to produce tracks inspired by the sound, many of the best Giallo and library samples had already been used and enshrined in the genre's canon.

My attempts to get *exactly* what I was looking for from Suno——namely Giallo-adjacent samples——were largely unsuccessful. It was too niche (at least it was as of August, 2025). I was having better luck approximating "Naima", and even that wasn't going well. Producer friends would find out that I was looking into AI as a sample source and ask if it was viable. All I could say was, "Not yet." I knew that Suno was new, and I suspected that it had the potential to, one day, be able to zero in on very specific requests.

So I went back to a favorite sound——one that feels comfortable in all its mystery and richness. I went back to jazzy trip hop.

In early August, 2025, I brought my then-five-year-old son along on an OfferUp deal. I want to expose him to music——how it's made, who you meet, what you sometimes have to do to create sounds you want——but an online-to-offline purchase could have potentially been the wrong parenting choice. We stood in front of a house in deep Southeast Portland, Oregon, waiting for a man to emerge. I had tried to explain to my son what we had come to find: an SP-202. Although he often seemed uninterested or confused by my explanations of my niche interests (fatherly and far too technical), I found the process of explaining to be helpful for myself at least. Why had I searched so hard to find an SP-202?

"Ok, you know how we have the sampler with the silver color? The one that has the buttons that play sounds when you press them?"

"Yeah," he said from the backseat.

"We're buying an *older* version of that. Sometimes it sounds worse than the silver one, and that's what we want."

I can't remember if he inquired as to *why* we wanted something that sounded worse, but I remember that I certainly

did, of myself at least. The Boss SP-202 was released in 1998, three years before its silver-faced successor, the SP-303, and it had serious limitations. Not only are its converters limited (these are the microchips that convert sound from analog (e.g., microphone, guitar, vinyl record) to digital and digital to analog (e.g., headphones or speakers)), but its storage is, too. In order to fit as many samples as possible on an SP-202, users will engage the "LO-FI 1" or "LO-FI 2" settings when recording into the sampler. These greatly reduce samples' audio quality, thereby freeing up space for users to record longer samples. These lo-fi settings have a unique sonic quality——ringy and sometimes nearly illegible.

The door of the little house opened. A man with stringy hair and a soft grin waved to us as he met us in the yard. Over shop talk (as brief and inconsequential as we could make it), I looked the unit over. The SP-202 looked to be in great shape. I showed my son. He was unimpressed.

Similarly to the E-mu Systems SP-1200, the Boss SP-202 and SP-303's limitations created an aesthetic in 1990s and 2000s beatmaking. If it was my intention to harken back to DJ Cam and some of the sonic textures I loved so much from the Team Sleep demos, I knew that I had to have some hardware that forced me into that sound.

At some point earlier that summer, I had purchased an indoor bench on a long, boozy day wandering vintage stores with my sister in Milwaukie, Oregon. It was on display in front of Main Street Collectors Mall & Soda Fountain, where John F. Kennedy once stopped in to sit at the soda counter while he was campaigning in 1960. You can sit on that very stool. I rushed in to buy the bench just minutes before a man in a tank top came up to the counter to inquire about it. I had no idea where in my home I planned to put it——I had enough furniture as it was. But I sometimes use *of course* as a noun. This bench was an *of course*. It sat awkwardly in my dining room ever since I had loaded it out of the Volvo, and I did my best to keep it from being another surface to collect junk mail and hastily doffed hats.

It turns out that that bench made for a perfect laboratory workstation. Low to the ground and topped with brown-orange imitation leather, this bench was just right for me to arrange musical gadgets however I wanted and impose some small order on the growing collection of samplers and tape machines and instruments and cables that had been taking over my living room. I dragged the bench to such a location that I could work, seated on the floor and positioned dead center between the two main speakers of my hi-fi. I have a music room with studio monitors (it's from that very room that I took all of the equipment now

arranged in front of my hi-fi), but I felt compelled to do this work in the living room. I was trying to bring immaterial music into the world of the living. It seemed appropriate if not a bit poetic.

My son was none too happy that I had commandeered the hi-fi (and therefore the television) for my experiments. He's no stranger to the odd sounds associated with music production and beatmaking—*tap tap tapping* through different snares to find *the right one*, repeatedly triggering a musical sample to dial in the perfect start point, twisting knobs to find that exact right reverb or EQ setting. It's trance-inducing for a producer; sometimes we just make strange noises for some unexplainable therapeutic effect. Curled up on the couch with a book or coloring a character from Minecraft, my son begrudgingly entertained himself while I set to work with Suno and the SP-202 on a bench in *his* living room.

I began with the Suno prompts. At first, I was straightforward:

A slow jazz trio (piano, bass, drums) playing melancholic but not tragic slow jazz, Lots of chords changes, but they don't happen fast

Weirdness 64%

Style Influence 87%

Suno thought for a bit. It returned two tracks, both titled *Untitled*, that were serviceable. They had all the trappings of banal post-bop jazz; clearly the stuff of AI-generated YouTube livestreams. The kind of jazz you might hear at a 40th wedding anniversary party in a hotel conference room as the night is winding down. Not enough woe. Not enough manhattans and hand-rolled cigarettes. I decided to get more abstract with my prompt:

A slow jazz trio (piano, bass, drums) playing melancholic jazz, It should give hints of whiskey, noir films, and night in the city, Lots of chord changes, but they don't happen fast
Weirdness 64%
Style Influence 87%

I began to fear that Suno had a fundamental misunderstanding of "melancholic". It returned a track nearly identical to the anniversary jazz of the previous prompt. It also generated a jaunty, hip number that would be better fitted for an intro scene for a forgettable movie——a man walks through Midtown Manhattan on a sunny day, waving to street vendors on his way to an office job. Clearly, Suno was not accessing tokens

taken from Chet Baker or Dave Brubeck. And I couldn’t mention them by name. Double down.

A slow jazz trio (piano, bass, drums) playing melancholic, depressive jazz, It should give hints of whiskey, noir films, and night in the city, Lots of chord changes, but they don't happen fast

Weirdness 64%

Style Influence 87%

There it was. Or close enough. One of the two tracks it returned opens with a muted felt piano playing a moody, slow Gm(maj^7) underpinned by a lazy brushed snare. This dramatic beginning is followed by a C minor, cool and played as a rolled chord. The C minor is interrupted halfway by a tension-filled F^7. From here the track gets a bit happier with D majors and the like, but all I needed was the opening——a moody, melancholic, bourbon-soaked sample. I titled the Suno track “Berman’s”. That sounded like the kind of 1960s East Village diner you might find yourself in, nursing a hangover after a long night of jazz and alcohol——fictional, entirely.

I downloaded the track from Suno and divided the samples into two rather than three. Three samples might be expected since there were three chords, but the Cmin and F^7were shorter

than the Gm(maj^7). I had the option of artificially extending the shorter chords to create three samples of equal length (which is viable in some applications) or joining them, which I did. Importing the sample into Ableton Live, I used the software's algorithmic warping feature to lock each of the samples at 90bpm. Ableton is famed for its warping capabilities. It is able to change the tempo of a piece of music and keep its original pitch while introducing relatively few artifacts. Digitally slowing music down while maintaining its pitch essentially creates gaps in the audio. Like stretching out a beaded necklace, warping moves audio data points further away from each other. Left unaddressed, this introduces incredibly fast bursts of silence——something like playing music through an oscillating fan. Digital samplers and software have attempted to solve this problem in a number of ways. Ableton Live, in my experience, just happens to do it best. Suno's "Berman's" samples are played slightly *rubato*——tempo is loose. This can be overcome by some trickery within the sampler itself, but I didn't need to make things harder than they had to be. My acumen wasn't the study here. I wanted to standardize the tempos, do a bit of timing prep, and lay things out before recording the samples into the SP-202.

"Berman's" lazy-yet-ominous Gm(maj^7) occupied sampler pad 7. The shorter Cmin and F^7 were on pad 8. I routed a 3.5mm cable

from my laptop to the SP-202 and recorded the samples. I experimented with the SP-202's sampling quality settings. "HI-FI", with its 32kHz sample rate, sounded almost identical to Suno's output in clarity and frequency response. "STANDARD" was noticeably muffled, with the high frequencies attenuated and the transients (i.e., the intermittent loud points of the audio sample) slightly muddy. "LO-FI 1" was ringy with a crackle reminiscent of a vinyl record or a damaged audio cable. It was here that the limitations of the SP-202, all of which signified its material presence in the audio output, began to show themselves. "LO-FI 2" returned a sample that was nearly illegible. Those charming limitations that tell the listener they are hearing an SP-202 became the primary feature of the sample. Any cool, muted tones——any reference to a smoky Greenwich Village jazz joint——were painted over with the graffiti of 1990s microchips. "LO-FI 1" was the sweet spot.

I was heartened by what the SP-202 returned when I could *play* the samples. Still at 90bpm (a tempo entirely too fast for the beats I typically made), the samples felt…real. I put myself in the position of someone who also *listens* to sample-based music. Would I be able to tell that these samples were made by generative AI? Maybe not. As someone who *makes* sample-based music and has thousands of hours of muscle and aural memory with the rubbery pads of a sampler and the way they play, did it *feel*

the same? Did it feel like I was making a beat like any other? It did.

I found it odd that this moment was revelatory. I haven't used a hardware sampler as my primary beatmaking medium in over a decade. This environment wasn't exactly *home*. I could have achieved a nearly identical experience within Ableton Live itself, a production ecosystem that is infinitely more familiar to me. Ableton (and any musical DAW) allows users to map individual samples to virtual pads, and it is common to connect a MIDI control surface (a peripheral that interacts with music software) that looks and feels just like a hardware sampler. The pads on this all-digital peripheral are rubbery; they trigger in-computer samples in exactly the same way (experientially) as an SP-202. There are plugins like RC-20 that can emulate "LO-FI 1" and crackling potentiometers with near perfect verisimilitude. The "in-the-box", computer-centric music production world lives and dies by its skeuomorphic abilities. So why did the "Berman's" samples feel so real played through the SP-202?

I lit a candle.

My living room is filled with ghosts. It was my grandmother's living room; she bought the house new with my grandfather in 1959. This is where they lived. It's where my

aunt grew up. Long after my grandparents divorced, this is where a man who I considered a grandfather, Robert (Bob) Farmer, lived.

They have all since died.

As a matter of fact, Bob died in 2021, right where my dark blue couch is——right where I'm sitting now as I write this. Over there by the grey couch is the last place my grandmother and grandfather spoke before he left. Behind me in the dining room is where friends gathered over the questionable mid-century jello molds and casseroles of an American suburb. Down the hall is my mother's childhood bedroom. I have photographs of first days of school, musical saw performances, orange shag carpet, toddlers in birthday hats——happy memories and sad memories.

Ever since the house came to me, I have done my best to honor its stories. The death, yes. The hurt, yes. The nucleation points that bloomed into generational trauma, now mine to ameliorate. But I have also looked for its joy: ten-foot snowmen in the yard in the 1960s, my mother practicing dance routines in the 1970s, the redemption arc of my parents returning to rent this house with their two-year-old son (me) in 1986. And now, this place is mine to care for. And I am cared for by it.

Suno lives somewhere else. Its data centers have their own death, spurred on by land use and overconsumption of water and electricity. Suno creates its own hurt. It launders our shared

human culture, which is rife with *human* hurt and death (and joy and healing). Suno lives somewhere else——and nowhere at all. To me, at any moment, it half-lives in my MacBook, or on the internet. I can't be sure where it lives, but I know it lives somewhere else.

I live *here* now. My son lives here now. And as I began hearing the "Berman's" samples turn into what would become "Etude No. 1", I realized that the SP-202 lives here too. Its squishy pads and obsolete circuitry are in this room. Yes, inside of the machine there is a storage card and microchips, but those are here as well. And my body, the same body that watches *The Blair Witch Project* on VHS and plays legos with its son, is a touching machine touching a machine. They are both *here*.

The candle is nothing ceremonial, at least not by design. It is a single-wick "White Gardenia" candle from Bath and Body Works on its last leg. Like the SP-202, it brings *things* closer. With nearly all the lights off and a candle just next to my setup, there is a sense of sacred place.

A hi-fi grotto.

I could hear it in my head. The "Berman's" samples, as played through the SP-202, needed a theremin. It is a ghostly instrument, often used in 1950s and 60s cinema to denote the

presence of a phantasm or an approaching UFO (an omen, perhaps). Similar-sounding instruments like the ondes Martenot and Trautonium would suffice. Just something with that ethereal, slightly-out-of-tune, warbling sound. Something haunted.

Sparse experiemental track, Not eerie or scary, Prominent use of onde martentot playing long, atmospheric melody lines
Weirdness 64%
Style Influence 87%

Ironically, this prompt brought me closer to a Giallo soundtrack sound than I had ever gotten before. Suno returned two pieces that sat somewhere between 1970s Italian horror, tech noir soundscapes, and modern trap hip hop beats——not the simple, manipulatable electronic notes I was looking for.

Mellow theramin playing long notes
Weirdness 64%
Style Influence 87%

Suno really latched onto the word "Mellow" here. One track was laid back and happy, with gentle guitar and a violin melody. The second was a somber jazz number with some kind of chirpy synthesizer toward the end.

Mellow theremin playing long notes, haunting atmosphere, electronic, slow, sparse

Weirdness 64%

Style Influence 87%

This prompt gave me what I needed: something dead simple. I was only looking for timbre: a single, drawn-out theremin note. I downloaded the track and processed it in Ableton before deciding how to infuse it with noise. How to bring it here.

I woke up on July 2nd, 2021 in The Jane Hotel in Greenwich Village with a goal. I was scheduled to fly back to Portland the next day, and my sole focus was to see if I could find a *real* diner——a diner like I half remembered from movies in the 1950s and 60s——a diner like what would become the imaginary Berman's. I wanted noisy vinyl booths all lined up against the window with a cup of watery coffee that was somehow perfect. The kind of place where I could watch a rainstorm and pretend I was an extra in *Glengarry Glen Ross*.

I'm quick to find old haunts in new places. I once took up nightly residence at The Undertaker Bar in Wexford, Ireland and became a familiar face after just two nights. Old City Coffee in Philadelphia; The Long Valley Bar in Cork; The Green Tortoise

Hostel smoking room in Seattle. The business owners didn't know me by name, but I was quick to become recognizable. In the Village, it was Three Lives & Company, a tidy little bookshop with a friendly older man behind the counter. Thin and soft-voiced, wrapped in a grey sweater, he wrote the names of four or five diners within walking distance that might fit my vague description. According to him, most of the iconic diners of old New York were gone, but he did light up a bit when he told me about Tom's Restaurant. It's a real diner on Broadway and West 112th St., but I may know its façade better by its fictional name: "Monk's Cafe"——where Seinfeld and his friends drank coffee on the television show.

It would be an all-day excursion to get from the Village to Morningside Heights just to see a diner, but that's the kind of thing I typically find myself doing when I travel. I marked out a few things I wanted to see from The Jane to Midtown——the Empire State Building, the Flatiron Building, Radio City Music Hall——then I figured I would take a taxi from Central Park to the diner. Each point plotted out on Google Maps, the trip looked like a perfect day to me: lightly structured wandering.

There was just one thing I had to do.

I had been posting a few pictures of the Village to my Instagram and Facebook stories. Colleen Martin, a family friend, saw them and sent me a message the night before:

Colleen: Are you NY for long? Got a request…

Me: I come back the day after tomorrow! What do you need?

Colleen: It's creeping up on 911. I have the original Hard Rock commemorative pins from New York. Any chance to hit HRC and see what they may have?

Times Square was *not* on my list of stops. After some back and forth:

Colleen: Are you close to Times Square?

Me: I'm not unfortunately. I'm in the Village. There's a chance I may be closer tomorrow, but I'm not sure yet.

Colleen: Of course you're in the village 🤣. Don't even worry about it!!

Me: Lol that's my style!

Me: I'll let you know if I end up that way though!

The next day, during my trek up 5th Avenue to end up at Tom's, that massive *Glengarry Glen Ross* rainstorm I had been dreaming about came through a little early. I found myself huddled under scaffolding at around 5:30pm. Watching the rain fall on Madison Square Park, I realized that I had left the Village too late. I would never make it to all of my

destinations. I wrote off Radio City Music Hall then wondered if I would even have time to walk through Central Park after the rains let up. I knew I only had daylight and energy enough for one of two things: Tom's Restaurant or Hard Rock Cafe. I made my decision.

I facetimed Colleen as she pointed out all the commemorative pins she wanted.

It is important to note that Colleen has always been a sudden blessing to everyone she knows. Somehow cheery *and* gruff, Colleen will help anyone move, fix something that is broken, or loudly tell a joke. She is a trainer at dance team competitions; that's how we all know her. There are few people more reliable or selfless than Colleen has been. This life is long, and I can always go to Tom's Restaurant, but I was near Hard Rock Cafe right then. Dodging Times Square performers and buying up $100 worth of pins for her was the least I could do.

September 19th, 2021 (a month and a half after I returned from New York City)

Colleen: My friend!!!! How goes it??

Me: Good! How are you? What's up?

Colleen: Good! I'm wondering if you would know what to do with blank cds, CD duplicating towers, reel to reel player, and all the cd sleeves you could ever want?

Me: I would know EXACTLY what to do with those…

Colleen: For real?

Colleen: We have cassettes too……😳

Colleen had inherited the music equipment used by the former director of music for all of Oregon's dance teams. This was the man that duplicated reel-to-reel tapes, cassettes, and CDs for dance competitions for decades, and he had amassed a dragon's hoard of obsolete audio media and devices. She had no use for any of it. I met her at a pole barn somewhere south of Portland, and we loaded my Dodge Ram's 6' bed with tape duplicators, CD jewel cases, reel to reel players, Marantz cassette field recorders, odd devices the function of which I had no clue, and *thousands* of blank cassettes. All factory sealed, in the box, lengths clearly labeled.

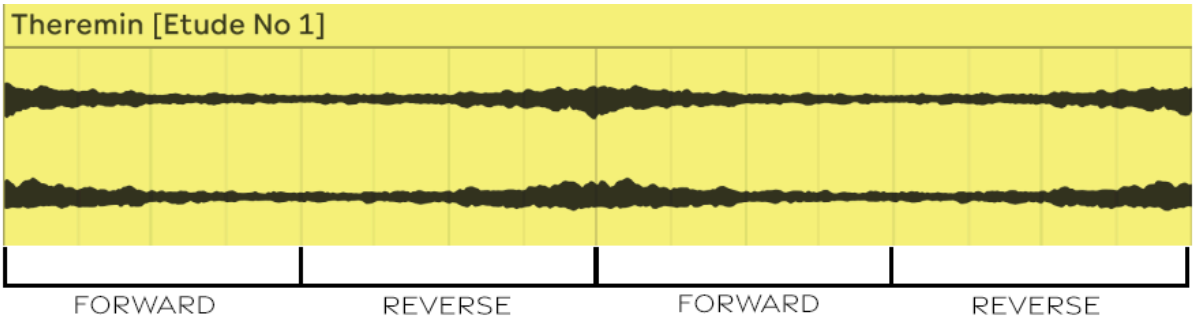
Colleen didn't give me the audio equipment because I sacrificed my diner dreams to brave Times Square for her. She would have done it anyway. But the moments are connected to me, and I felt a little better about taking these things after having brought her the pins.

I was only able to isolate a short section of the theremin note in Ableton. Other instruments crowded the mix after that section, and I was left with just over a second of usable

isolated theremin audio. While I wasn't entirely sure how I intended to accomplish what I wanted for the final piece, I knew that I needed a very long, sustained theremin note——infinite as far as I was concerned. I duplicated the short audio file, reversed it, and butted the two up to each other. With some work, the forward-running audio crossfaded with the reverse-running audio creating a slight dip then rise in gain. I duplicated this construction and crossfaded it with itself (Figure 8).

Figure 8

Ping-Pong Loop



I was then able to duplicate this construction as many times as I wanted, giving me the potential for an infinite loop. This is called a "ping-pong loop".

This sample produces a single note. With pitch adjustment, it can fit into any key and follow any chord progression. This is, of course, something I could do entirely in Ableton, but

listening to the remediated "Berman's" samples on the SP-202, I had an idea.

My music room is filled with all manner of audio equipment, half of which is in working order, and I kept a thousand or so of Colleen's blank cassettes. I thought of Times Square and the abandoned trek to Tom's Restaurant as I dug through the neatly organized boxes of cassettes of different lengths: C62 (31mins per side), C90 (45mins per side), C120 (60mins per side). The longer the tape, they say, the lower the audio quality. Since I was already planning on roughing up the music with 30-year-old equipment, I grabbed a clear and black C62.

I tested each of the three Marantz cassette field recorders Colleen had given me and found the most reliable one: a Marantz PMD221. Produced from the 1970s to the 90s, the PMD200 series was mainly used for field recording in journalistic and documentary work. Its setting options reflect this with a recording mode dial (manual, limiter, and ALC (automatic level control)), a speed switch that allows for "LOW" and "STANDARD" tape speed settings, a large recording level and VU (volume unit) meter, and tone and monitoring settings. With designs on remediating the theremin note and materializing it, I realized that my need for an adjustable pitch could be accomplished through the Marantz's pitch knob——a highly sought-after feature for cassette-tape-centric music producers.

With the pitch knob, I could match the theremin pitch to the key of the "Berman's" samples played through the SP-202 and would retain the flexibility to change pitch on either machine and compensate for this change on the other. Adjusting pitch on the Marantz (and nearly any hardware equipment) involves also changing the speed at which the audio sample plays. This is true of the SP-202 as well. Having prepared the "Berman's" samples in Ableton at 90bpm, I wanted the beat to be slower. I slowed the SP-202 samples down to roughly 73bpm, which brought the pitch down as well.

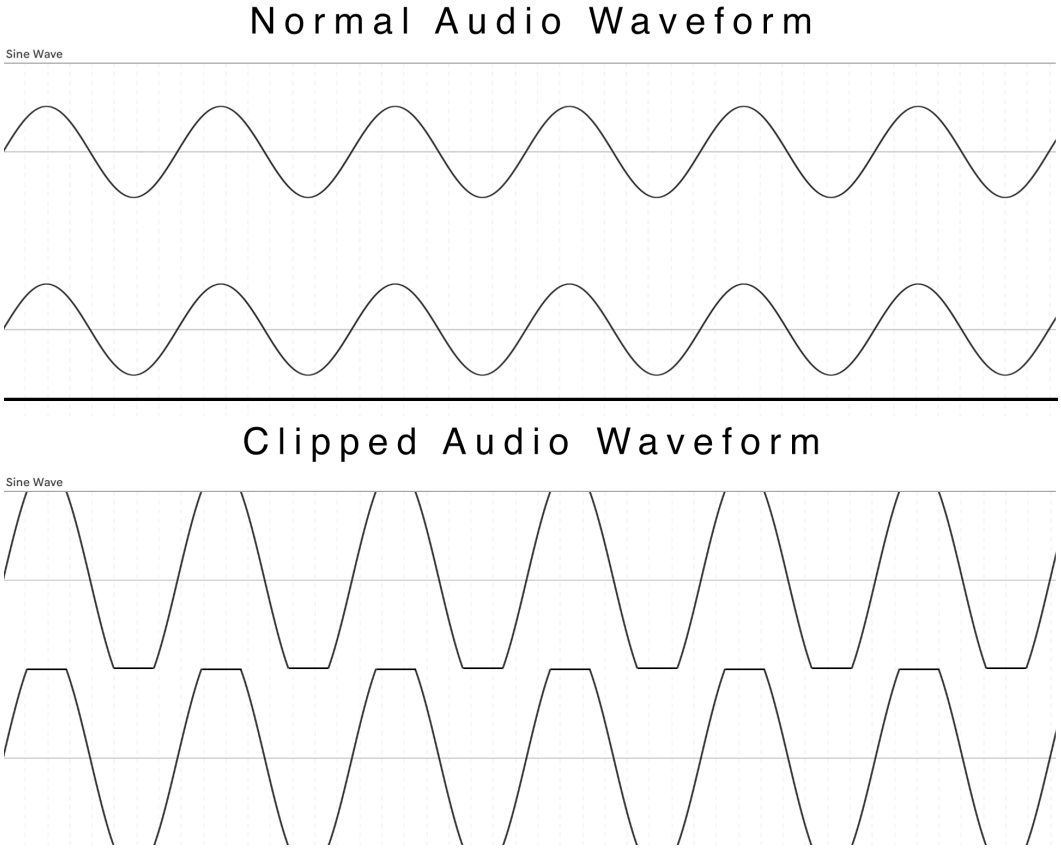
Pitch/tempo adjustment is not an exact science in hardware samplers and tape recorders, and this was precisely the point. I can type "73" into the tempo field in Ableton and achieve something that is mathematically (nearly) perfectly 73bpm. Adjusting the tempo through a pitch knob on a 30-year-old machine forced me to use my body, my ears, and the crude circuitry of the SP-202. I got the tempo *close enough* to what I wanted. Turning the SP-202's knob counter-clockwise, I got the pitch and tempo to where it sounded *right*——not to the bpm range I intellectually know I typically work in. Furthermore, the audible artifacts of the SP-202's LO-FI 1 setting were altered by adjusting the tempo. Changing the pitch of the musical sample also changes the pitch of the artifacts, and that ringing, scratchy character of a reduced sample rate becomes smoother at

a lower pitch. It is an iconic SP-series sound, not unlike DJ Crook's Team Sleep sound.

Recording to cassette is a relatively delicate process. To get the real warmth of a tape recorder's on-board compression, and to get just the slightest bit of audio distortion unique to cassette, the incoming audio signal must be ever so slightly higher than the tape recorder suggests through its VU meter. I routed my laptop into the "TEL" (telephone) port on the Marantz (the "MIC" port produced an unusably loud signal) and experimented with achieving the loudest possible signal with just the right amount of *clipping* (Figure 9). After some trial and error, I was able to get a gritty, mellow, haunting, infinite theremin loop.

Figure 9

Clipped Audio Waveform



Both the top and bottom waveforms here are from the exact same source: a simple sine wave. When an audio waveform does not exceed the input gain bandwidth of a given medium, it plays in its purest form through that medium. Notice that the waveform on top does not touch the bottom nor the top bounds of the waveform diagram. These bounds are the gain limits of this medium (in this case, it is a digital recording medium). The second waveform exceeds the gain limits. This causes the waveform to get "clipped" (i.e., the loudest parts of the waveform are cut

off). Clipping introduces a new waveform shape. The smooth shape of the sine wave is interrupted by this clipping, and the output result is a distorted sound——noise. Depending on the application and the medium, this either is or is not a desirable feature. Every medium (e.g., cassette, digital recording, vacuum tubes, etc.) has upper limits of input gain, and the way that every medium clips audio input is distinct. The distinction between distortions signals to the listener which medium was used.

I'm at Six Below Midnight in late December, 2025. It's a long concrete rectangle of a room in the basement of a goth bar on Belmont St. in Portland. I had always thought it was a strange place for a concert venue. Parallel walls, especially those made from a hard surface like concrete or metal, cause sound waves to bounce around, echoing and interfering with each other. Music begins to sound like a harsh rainstorm——no one note or drum hit is distinct from the next. But The Six is fun. When you turn the ell on the ever-darkening staircase down to the room, the music swells up, loud and brash. The criminally low lights and lo-fi architectural aesthetic are a stark contrast from the curated goth bar-in-the-round upstairs. The Six is close-quarters with decently strong drinks, interesting acts, and a seating area for those of us who are getting on in years.

It's the night of Portland Synth Library's benefit show. A non-profit dedicated to promoting synth music of all kinds——modular, analog, experimental——PSL is located in Portland's Lloyd Center, a mall that, as of this writing, still stands but is condemned to be demolished. For many years, I have been involved in the Portland electronic music scene. Although I am active as an electronic music educator and occasionally release and perform music, I'm more of a flâneur at events like this. An Instagram post with the proper tags or a few handshakes with known musicians may signify that I had been present, but my primary goal is simply to be there——to see what the Portland electronic music community is up to.

On this night, a few friends are performing. "Rake", a beatmaker, artist, and all-around good guy, is the final act. Known for immaculate, wild, yet accessible beats, I am excited to see his set. Typically, when beatmakers perform, they are triggering mostly pre-constructed compositions and intermittently applying effects or muting certain aspects of their beats. They drop the drums out and let the samples stand alone for a measure or twist a knob and engage a stuttering effect for the last two counts before a turnaround. While it may lack the sense of virtuosity typical of a rock guitar solo or chamber group performance, its virtue lies in the obvious preparation of the beats beforehand. No one asks what the

performer is doing up there; they simply appreciate the sound, however it's presented.

I have seen Rake before. I can't remember if it had been at ADX or L'Atelier Yaffe——some makerspace or artisan cafe. There are a couple of his cassettes in my collection, purchased from Bob at Super-Electric Records on MLK. Most beatmakers in this town use the successor to the SP-303 (two models newer than my SP-202), the Boss SP-404MKII. Tonight, I expect the regular drum dropouts and stutter effects, but Rak" presents something different: he plays the SP-404 like a proper instrument. Normally a tabletop sampler, Rake holds his in his hand and hits the pads hard and fast——like a rock guitar solo. Whereas attendants at a beat set are typically mellowed out, swaying to the calm downtempo rhythms of the lo-fi beats (a la The Bootleg Boy and STEEZYASFUCK), Rake's crowd is electric. Replete with gasps and hoots, his twenty-ish minutes are filled with energy. The once blissed-out audience spread evenly throughout The Six is pressing forward to get a glimpse of this madman abusing his SP-404.

I am taken in by the energy of it all, but I am more focused on the actual performance. How is he accomplishing these sounds? Are the samples prearranged? Is he triggering them one-by-one? Wait. He has *two* SP-404s. Is one for effects and the other for source audio? How had he practiced?

It reminds me of past performances of my own. Although my live sets were substantially more staid in their approach than Rake's, I believed that, if I were to perform my own beats live, I should be constructing them as much from scratch as possible. Armed with an SP-303 and a tape deck, I performed at Produce Row for "A Beat Happening", a mainstay Portland beatmaker organization that hosts regular events. Triggering individual samples on my Ableton Live Push controller, I opened for the rapper B. Dolan for his Portland stop during his *The Wound is Not the Body* tour at Kelly's Olympian downtown. I perform so infrequently compared to many beatmakers in this city, though, that each of my appearances feels more like a cameo than a regular occurrence. Sometimes a flâneur keeps a low profile.

For all of my in-the-box, in-studio music production experience, I have always seen great value in performance. This could be the trumpet solos and indie rock shows I played in my teens and twenties, Rake's electric SP-404 set, or even a live performance in a recording studio (or living room) for the purposes of making a recording. The slight mistakes, variations in timing, on-the-fly changes, and serendipitous discoveries lend a kind of organic volatility that feels as though it may fall apart at any time.

Whereas the pristine digital recording portrays a kind of organizational virtuosity, the acoustical live performance occasions something like a sustained miracle. It feels, for both performers and listeners, that acoustic music defies odds and relieves the listener when, instead of collapsing into an out-of-tune rubble, it holds together.

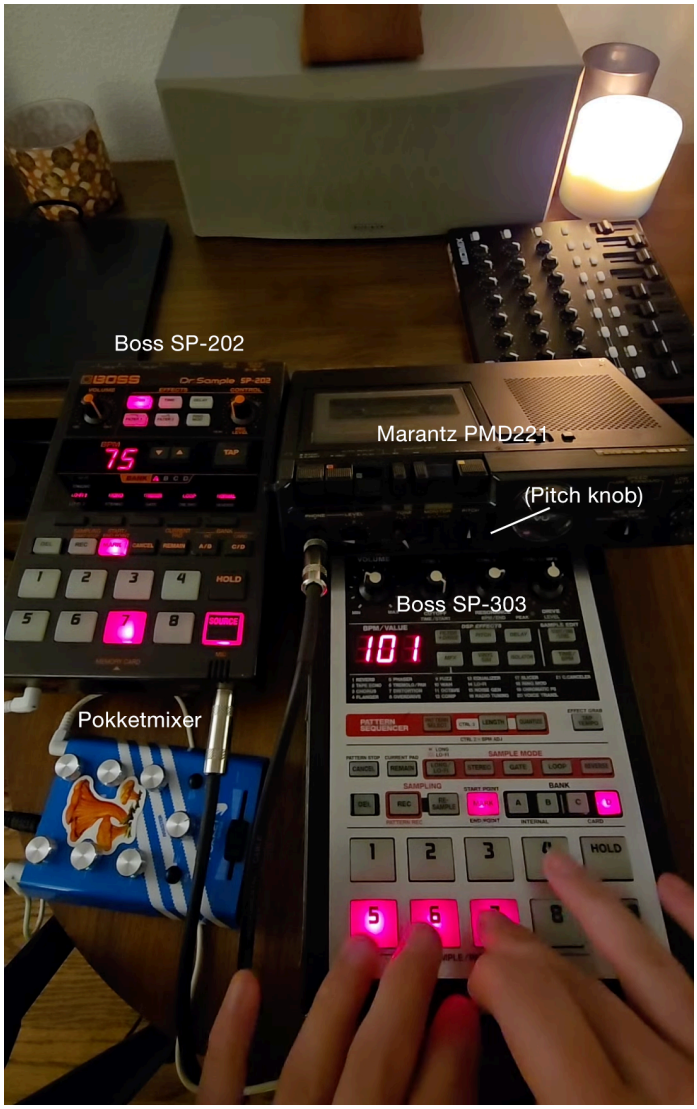
September 1st, 2025

Although not acoustic, choosing to perform "Etude No. 1", even at home alone on my cluttered bench, ran some of the same exhilarating risks that live acoustic music does. One crucial element of this is that, when a live performance does not fall apart, its soundworthiness in the open air retains that "sustained miracle". It earns its right to exist in this world by way of its cohesive, listenable nature and its collaboration with the embodied player. Performance, then, seemed to be the best way to experience and create "Etude No. 1". I began to notice a nearly compulsive and somewhat subconscious need within me to introduce noise of any kind to the Suno-generated samples. It felt like a way to blend them in with each other and with anthropogenic sounds. In reality, it was a way to blend these AI sounds in with the physical world. Rather than using the SP-202 and PMD221 to print the samples back into Ableton, then arranging those samples in Ableton to create a piece of music, I

crowded the machines together, loaded up the SP-303 with simple boom bap drums, and ran them all through a pocket mixer that would allow me to adjust the volumes of the SP-202 and PMD221 (Figure 10).

Figure 10

Performance Setup of "Etude No. 1"



To place this piece in the traditional craftways of sample-based hip hop/trip hop, I used a relatively simple structure. The meticulous nature of finding and honing a sample often supplants the need for flashy compositions and performances in hip hop beatmaking. This genre, from an instrumental standpoint, also often functions as an accompaniment to rappers, so beats are typically simple so as not to overpower the vocals or clutter the mix. This sonic quality is still regularly seen in purely instrumental forms of hip hop beatmaking.

[Note: Because I pitched the "Berman's" samples down in the SP-202, the actual chords no longer match the original. For instance, the Gm(maj^7) becomes a Dm(maj^7). I will, however, refer to them here by their original chord symbols.]

"Etude No. 1" opens with the loud *chunk* of the Marantz's play button. After a few seconds of atonal tape hiss, the theremin tape plays an infinite note. The steadiness of its original Suno source is foiled by the slight transient variations in magnetic tape quality and the aging motors of the Marantz. Distortion from the magnetic tape medium and the Marantz's preamps also contribute to the end result's shift in tone. The pitch knob of the Marantz is at 12 o'clock as I press pad 7 on the SP-202, the Gm(maj^7) from the "Berman's" sample. The sample contrasts the unsettling warbling theremin with its

timid, moody piano. Pad 7 loops twice while I move the Marantz pitch knob from 12 o'clock to 8 o'clock to create a simple two-note melody. Because the theremin is a single, held note with no discernible beginnings or ends (only slow variations in volume), I do not have to worry about it being perfectly timed to the rhythm of the piano samples.

The theremin's 8 o'clock pitch position tonally fits perfectly with the Cmin and D. These two chords are both only one measure long and play one after the other on pad 8 of the SP-202. This functions as an apt turnaround to come back to the $Gm(maj^7)$ on pad 7. After one round of the pad 7/pad 8 phrase, I bring in hand-tapped boom bap drums on the SP-303. These are fairly nondescript drums that had been on my hard drive and serve primarily to "glue" the pieces of the composition together.

Moving swiftly between the SP-303 drums, the Marantz's pitch knob, and the SP-202 samples, I construct a simple beat. After a few times through the basic structure, I let the drums end. I return the pitch knob to 12 o'clock and let pad 7 loop over and over. Reaching across to the mixer, I slowly fade the music out.

“Inch Strand Yuta” [Ambient/sound design]

September, 2025

Content input:

AI Samples

Signal:

Suno

Ableton Live

Catalinbread Echorec

Electro-Harmonix Oceans 11

Fostex X-12

Korg Electribe ES-1

Alesis MultiMix 16 Firewire Mixer

Through “Etude No. 1” and the countless previous attempts to create “believable” hip hop beats, I felt as though I had achieved *something*. This was primarily the belief that, if someone played that music for me, I would not be able to tell that those beats used AI-generated samples. It’s an arbitrary benchmark, and one that lies outside of the scope of this study, but it elicited in me a feeling of accomplishment. As of September 1st, I was unsure of whether I felt that I had accomplished something artistically meaningful; truth be told, this was when my attitude toward using AI samples began to subtly shift.

At the risk of looking concerningly odd, I raised my cellphone up to the ceiling in Elevator B in Powell's Books. That day, February 1st, 2025, the famed Downtown Portland bookstore was absolutely packed, and I shared the elevator, up-and-down-and-up-and-down, with people polite enough to pretend not to notice me but human enough to have the slightest expression of confusion. If you ever find yourself in that "City of Books", make your way to Elevator B in the middle of the building. It doesn't go all the way up like its counterpart, Elevator A, but it sings——a drawn out B♭ like an electrified French horn. Knowing next to nothing about elevators, I don't know what causes the note, but it's steady and ever so slightly ethereal. It is accompanied by the occasional chorus of mechanical squeaks and punctuated by the chunky, clattering car reaching its destination. Then it's all-out cacophony from the chattering patrons when the doors slide open.

I have done a surprising amount of musical work using my cellphone's voice recorder app in recent years. While I usually use it to record vocal melody ideas or lyrics, it has more recently become an unlikely field recorder. With the idea of, perhaps one day, bringing a proper field recorder back to Elevator B, I held my phone's microphone up to the elevator's ceiling, the closest point in the car to the hum. I rode the elevator from the ground floor to its highest stop three times.

My raised arm was shaking by the time I called it quits and headed back home to see what I could make of Elevator B's B♭. I can't recall what possessed me to do it, but I ended up writing an adaptation of the traditional Irish folk song "She Moved Through the Fair" with different lyrics. Maybe the droning elevator note reminded me more of Uilleann pipes than a French horn.

It took a fair amount of manipulation to get the elevator tone just right. I applied effects, changed the pitch, layered it to make chords, chopped it up to make rhythms, and any other manner of music production wizardry (or madness) I can think of. This is a common exercise for me. I leave the door open for a viable, complete recording worthy (in my mind) of releasing to the public, but I am often doubtful. When I come across a beautiful sound——either from the physical world or the digital one——it is often enough for me just to play with it. Its final destination is unimportant.

While constructing what would become "Inch Strand Yuta", I exercised many of the sound design practices I have developed over the years. The piece comes from two Suno-generated tracks, which I named "Inch Strand" and "Yuta", naturally.

I tailored my prompts primarily to serve material processes. Looking at the array of remediating devices on my

bench, I began to imagine ways to misuse them. I wanted to tap into what these devices *do* rather than what they are meant for. I follow a number of sound designers and musicians who explore unintended uses of analog audio equipment and who are bricoleurs with tape machines and homemade plate reverbs and wire recorders. Among these are Hainbach, an experimental artist who is predominantly known for his successful YouTube channel. A champion of obscure, vintage recording equipment, media, and techniques, his videos taught me about recording to steel wire, "sound-on-sound" tape looping, and the Califone. Hainbach also paired with AudioThing to develop ten VST plugins that emulate obsolete audio devices and media. I have, in the past, incorporated his "Wires" and "Things - Motor" plugins.

Another of these creators are the duo Battery Operated. Hailing from the UK, Battery Operated are half-artists and half-makers. They make music using homemade cassette tape loops. With razor blades, eyeglass screwdrivers, and splicing tape, they open cassette tape shells, cut a short piece of the magnetic tape to a very specific length, splice it in a loop, then install all manner of extra wheels and spacers in the body before reinstalling the tape and screwing everything back together. I suspect that their primary source of income, more than music production or YouTube and Instagram content, comes from their Etsy shop. They offer premade Walkman-style tape

players with pitch control, tape splicing toolkits, and premade tape loops. I have had conversations with them over the last year or two about how we use magnetic tape in interesting ways.

Stegonaute, an experimental musician based in France happened to be the most influential artist for the construction of "Inch Strand Yuta". Like Battery Operated, Stegonaute uses tape loops to create ambient, lo-fi soundscapes, but he also incorporates many other elements. Using live acoustic pianos, electric guitar, Nintendo Switch software, homemade tape delays, and countless other inputs and outputs, he creates otherworldly music deeply rooted in the physical objects he uses——imbued with their unmistakable sonic qualities.

The 4-track recorder is a staple of Stegonaute's sound. 4-track recorders were originally developed as recording devices meant to allow musicians to record individual tracks (e.g., drums, guitar, vocals, etc.), balance their gain levels, and create mixed recordings. I was first introduced to Stegonaute's method of subverting this recording device and using it as an instrument in a video he posted on April 4th, 2024. In the video, he presses play on a Fostex Multitracker XR-7, and an unsteady tape loop begins to play. He had pre-recorded individual notes on each of the cassette tape's four tracks and, by turning the volumes of each track up and down, he was able to "play" them as live notes. He blends the lonely sounding synth

tape loop with another loop (indistinct voices and what sounds like children playing) on a smaller 4-track recorder.

It was in pursuit of this method of performance that I began prompting Suno:

Angelic choir with subtle reverb, Mostly female voices holding long chords with distinct voices

Angelic choir with subtle reverb, Mostly female voices holding long chords with distinct voices, Sad, profound, hopeful

Angelic choir with subtle reverb, Mostly female voices holding long chords with distinct voices, Sad, profound, hopeful, No melody

Ad nauseam until——

Angelic choir with subtle reverb, Mostly female voices holding long chords with distinct voices, but there are baritones, Sad, profound, hopeful, No melody, Just chords, No strings, Just voices, Melancholy, Very slow

My intention was to get four chords sung by an angelic choir——something you might hear at the dark night of the soul moment in a fantasy film. After much convincing, Suno provided

me with something very close to what I had been hearing in my head. The track features a faraway choir singing (1) a D and an F (the minor third interval of a Dmin chord), bringing in (2) an A (making it a full Dmin triad), (3) moving to an uplifting Cmaj triad, then (4) creating tension with a B♭maj triad. The track had what I needed, but there were other instruments and textures in the full mix, so I needed to isolate the voices.

> *To begin, I learned that AI music has a sound. This is not so much a compositional one (although I may find that to be the case along the way) but a timbral one. There are two primary technical aspects I can assume contribute to this sound… The second contribution to AI's sound comes from a secondary process: stem splitting. A brief explanation: If my goal is to sample isolated instruments, I have to use what is called a stem splitter to get only the drum track of an AI song* [for instance]. *Suno does not do this on the back-end. It does not, before delivering to me its final response to a prompt, identify which part of its music are violins, bass, percussion, etc. Suno does, however, allow users to use a post-hoc process to split these stems apart. A common process which predates Suno by a decade (at least), stem splitting listens to the whole songs, determines which parts belong to which instruments, and*

delivers separate audio files for each. This process is both remarkably effective and glaringly flawed. It misses some parts, letting a bass note hitch a ride on the percussion track, cutting off reverb tails, things like that. More than these, it adds an unsettling robotic noise to the tracks. Sometimes it's barely perceptible——others it is front and center.

September 1st, 2025

It was my emotional response to this uncanny robotic noise that would inspire future attempts at introducing noise to the tracks, and it would ultimately contribute to my artistic and emotional response to the entire process.

Splitting "backing vocals" from the "Inch Strand" file, I was able to isolate the choir. Using a process similar to how I extended the theremin sample in "Etude No. 1", I used a back-and-forth loop to create potentially endless D minors, Cs, and B♭s in Ableton. I made sure to leave off any effects in the DAW; I had a plan for that too.

My grandfather was a printmaker before home computers and printers forced him into retirement. On the wall of his living room was a giant paper map of the earth that he had printed. Being a cartophile since I was very young, I would often ask him

to lift me up to see the different countries, find out their capitals, and memorize which ones were neighbors. On one of these occasions, when I was five years old, my grandfather pointed to a little green shape in the Atlantic Ocean. "You see this?" he said. "This is Ireland. It's where your grandma's family is from." I was only vaguely aware of Ireland at that point, but I was obsessed with knights and castles and the Old World. I imagined that Ireland was where they all must still be.

"Then I will go to Ireland," I said to myself.

It would be twenty-two years before I fulfilled that promise to myself. I was able to study in Cork City for six months during my undergrad. On scholarship, I lived in a little flat, busked for cigarette money, hitchhiked around West Ireland, made friends, and even fell in love. By the time I had to come home to America, I vowed to move to Cork permanently once I graduated. There were no knights, the castles were all empty, and the Old World didn't seem that old. My assumptions about Ireland turned out to be mostly wrong. The fact that I chose it as a life goal seemed arbitrary. But it had become my real home.

Life, of course, tends to have its own plans sometimes if you don't brute force your own. I graduated, got a teaching job, went back for my Master's degree, and had a son. I woke up on some rare sunny February day seven years after having left Cork

International Airport and realized I would never move back to Ireland. I had too much here in Portland. It's difficult to explain the experience of mourning that plan that I hadn't pursued hard enough. It was always in the future. It was always possible. It was a foregone conclusion that I would go there for the rest of my days. Suddenly, I never would. This realization hit me hard and still makes my heart ache from time to time.

I did return, however. Nearly 14 years later, for my 40th birthday, I went back home, as my Irish friends still say. Alone in a rented Toyota, I drove from Dublin to Cork. The moment I saw the lights from the city, I burst into tears——bitter tears. I had expected to be overjoyed, relieved. It was nighttime on that last day of being 39, and I was in my city, but the sorrow and the grief and the passage of time filled me. I sat in the car in a garage just a block from my old flat and just cried.

I turned 40 at midnight at the first Irish pub I had ever gone to: An Bodhrán. I made fast friends who cheered with me as the clock on my phone switched to September 29th. Another round of Beamish (no self-respecting Corkonian drinks Guinness when there's Beamish on tap), a single cigarette for old times' sake (I had quit years ago), and some pictures with these strangers.

Over the years, I have tried to understand the emotional impact that Ireland has on me. I have been there three times, and each time, the first day and a half or so is filled with a

deep sorrow. I have come to the conclusion that the rain and biting Atlantic winds erode away any pretense of a false happiness. This is a happiness that Americans insist on through their social media posts and friendly retail greetings. The United States is still young enough to pretend that everything is ok. Ireland knows its own oppression. It knows its famine and the erasure of its culture. Ireland's joy then——its music and humor and literature——are hard-fought treasures. By dropping myself into this windswept landscape, I am always forced to first confront my sorrow before experiencing the joy I feel on that island.

Just after my 40th birthday, I took the Toyota on the roads I could only hitchhike 14 years prior. Winding through West County Cork, I stopped at places that occupied a misty nostalgia, confirming that they were still there. I could still feel the mourning I had for the passage of time, and I found a song that reflected that aching back to me: "Rhubarb Orc. 19.53 Rev" by Aphex Twin. The "Rev" in this song's title refers to the fact that it's a reversed version, but there is no official forward-playing release. Regardless of the direction it is played, it is a hopeful, somber, sacred sounding piece with heaving cellos, sweeping and quivering violins, wavering tenors, baritones with gravitas, and a lone soprano soaring over everything——sacred and angelic. Something you might hear in the

dark night of the soul. I played it on repeat for all 500+ miles I drove as I wandered aimlessly through my own sense of loss.

After a much-needed rest in Killarney, I drove the Dingle Peninsula in County Kerry. My heart ever-so-slightly lighter, I watched the dramatic Atlantic clouds converge and disperse over impossibly green hills and colorful villages. As "Rhubarb" started again, I spotted a vast expanse of ocean. Already tired from driving, I pulled over and got out. A three-mile beach stretched out before me as that westerly wind battered my face. The ocean stretched out to the horizon, and I felt a subtle wave of relief.

Inch Strand.

It was almost exactly a year after my return to Ireland that I began pressing Suno for angelic choir samples. I had been invited to speak at a conference in Madrid in the upcoming month, and I decided I would leave America a bit early and visit Ireland again before flying to Spain. I was mapping out this third trip around Ireland and deciding whether I should take the old route through Cork, then Kerry, Clare, and Galway as I had done the year before, or if I should explore the northeast——Dublin, Belfast, Donegal, and Sligo. I consulted the Instagram video I had made of my trip a year prior. A disjointed edit of quintessential shots of rural Ireland mixed with Irish

music in pubs and footage from airplanes, the video was scored by none other than "Rhubarb Orc. 19.53 Rev". Whisked back to those bittersweet miles logged in the Irish countryside and envisioning my upcoming return, I was inspired to create something similar using my 4-track, a sampler, a reverb pedal, and Suno.

Using the same technique of recording on the tape recorder a bit louder than the machine recommends, I sent the choir samples to tape. Using my Fostex X-12, I recorded the Dmin minor interval on track 1, the Dmin on track 2, the C on track 3, and the B♭ on track 4. I had been in correspondence with Battery Operated for a while, trying to create a tape loop that would work in a 4-track. There is an issue with the auto-stop function on most 4-track tape recorders. The difference in tape tension causes the machine to stop playing as a safeguard against ruining the pinch rollers or breaking the tape. Neither Battery Operated nor I could solve this issue. Because I was unable to create a functioning loop of 4 separate tracks, I decided to extend the "Inch Strand" choir samples out to five minutes in Ableton. I then painstakingly recorded them to each track. This way I could leave the tape running for five minutes while I experimented with the volume sliders. It wasn't infinite, but it gave me enough time to explore the embodied process of using the sliders to bring different chords in at different times.

I began to think of how my own personal influences as an artist shape the music that I write no matter the genre. Oftentimes, when I write music, I find that I am inspired by new music, and that shifts the songwriting. In addition to memory lane trips with "Rhubarb", I had recently begun listening to Talk Talk's revolutionary 1988 album *Spirit of Eden* and had "Goodbye Bastion" (2017) by The Flashbulb. Both the Talk Talk album and "Goodbye Bastion" feature brass instruments prominently, and that had been running through my head a lot as I imagined what was next for this composition.

Create a slow, cinematic instrumental piece built around a mournful solo trumpet, The trumpet should play long, sustained notes with a regal yet sorrowful tone, evoking a sense of farewell or fading grandeur, The performance should have a deep, expressive vibrato and natural reverb, almost as if echoing across a vast hall or canyon, Minimal accompaniment——just soft, atmospheric textures or faint orchestral drones underneath to give space and gravity to the trumpet, Focus on long, evolving horn notes that can be sampled cleanly, with emphasis on melancholy and dignity
Style Influence 82%

It only took Suno one try to give me something I felt I could use. At the time, I was reading the novel *Strange Pictures* (2022) by Uketsu, a mysterious, anonymous YouTuber and author. The book's main character is named Yuta. Sometimes music producers bestow their songs with titles that have deep and powerful origins that recall forlorn road trips in foreign countries. Sometimes they name them after the first thing they see. *Strange Pictures* was sitting right next to my laptop. Thus, I named the Suno track "Yuta".

I used the stem splitter and listened to the trumpet parts. The composition and timbre were almost exactly what I was hoping for. The notes are melodic, but they don't move quickly. They are long and regal. They share that quality with the trumpet in "Goodbye Bastion". Listening to them in Ableton through my studio monitors, I was astonished at how the "Yuta" notes seemed to emote——seemed to have some tangible flake of humanity in them. They soar, yes, and then they collapse, as all notes do, into silence. But that's not entirely true with the "Yuta" trumpet notes. Instead of fading into silence, riding those last shimmers of reverb into nothingness, the "Yuta" notes seem to disintegrate. Artifacts from the stem splitter and from their AI origins, sparkly and glitchy, swell up as the notes die down. Unless you have heard this sound, it is hard to explain. It is unmistakably digital. It is strained, almost like raw data being

blown out through a tiny straw. Little shimmers and packets of sound, once hidden under a loud signal (like the trumpets' crescendoes), increase in volume as the signal fades. Ironically, it sounds a bit like the tiny bubbles left behind when an ocean wave retreats from the shore, but it lacks the healing power of Inch Strand (or any strand for that matter).

Part of the majesty of the "Yuta" trumpets lies in their reverb. Before running through the stem splitter, this reverb is intact enough in the full mix that that quality is mostly present. After isolating the trumpets, however, it becomes an uncanny, almost terrible granulation. Luckily I am no stranger to audio repair and workarounds for undesirable artifacts. Admittedly, these are typically room noise or vinyl crackle, but I had a few tricks up my sleeve.

The first part of the solution was to remove the reverb tails entirely. If I could isolate just the notes as they are played, I could use them. In Ableton, I cut the ends of each trumpet line (there were four in total) right as the digital artifacts start. I then recorded each of the lines to the Korg Electribe ES-1. I chose this sampler because it would simply play the samples. It does not have strong remediation properties; audio is played back relatively faithfully.

My remediation plans for the "Yuta" samples involved a guitar pedal made by Electro-Harmonix called Oceans 11 and a

pedal by a Portland company, Catalinbread, called Echorec. Oceans 11 is an all-in-one reverb pedal with a number of different settings, and the Echorec is a delay that adds some pitch modulation and cuts high frequencies, invoking the sound of old magnetic recording. By trimming off the reverb from the sample, I can reintroduce it with the pedals. The added reverb smears the samples, hiding any of the artifacts. With the samples all loaded to pads 1-4 on the ES-1, I play them through the Oceans 11 on its "Hall" setting (this emulates the sound of a room's natural reverb). Without the disintegrating tails, the "Yuta" trumpets barely sound digital, especially once the pedals turn them into a reverberating wash.

With the X-12 4-track recorder and the ES-1 running into the Alesis board, I carefully blended the "Inch Strand" and "Yuta" samples. Unlike with "Etude No. 1", I attempted to create an ambient and angelic experience with "Inch Strand Yuta". I was able to bring each chord in without regard to tempo. Bolstered by the effect pedals, the choir sounds become something faraway and mythical. Some voices reach out for just a moment, resembling "Rhubarb"'s lonely soprano. With a five-minute 4-track recording, I have the freedom to bring the chords in when I feel called to.

Once I became acquainted with the chords on the 4-track. I began incorporating the "Yuta" trumpet samples. Having been

pitched in Ableton to match the "Inch Strand" chords, the trumpet melodies blend perfectly. I was surprised at how seamlessly they join with the choir. I am reminded of something from Howard Shore's scores for the *Lord of the Rings* movies (2001-2003)——maybe "The Grace of Undómiel (feat. Renée Fleming)" or "The Eagles (feat. Renée Fleming)". Filling my living room with this ethereal sound——spun from a placeless AI generator and sent through these storied objects——renewed my optimism that I could make something that felt human and material from AI-generated music.

And I was excited to experiment. Harkening back to "Rhubarb", I reversed the "Yuta" samples using the ES-1. Reversing audio often gives it an otherworldly quality. There is nothing in nature that sounds quite like reversed audio, so the sounds are uncanny. This can yield sublime sounds, and it can also introduce a kind of unsettling feeling. The reversed trumpet did both.

> *So much of the process of working with AI samples has centered around the exhaustive and wild process of remediation——that is to say, the act of taking a signal from one medium and passing it through another. The introduction of materiality, space, and unpredictability*

(in other words, noise) have breathed a little glimmer of life into these AI-generated sounds.

The medium of tape brings its pitch instability, bandpass character, and hiss. What is most beautiful——what sounds like another artist in the room——is the untamed harmonics that tape distortion brings. It sounds like a ghostly lead soprano is gently soaring over the top of the original recording.

The medium of hardware samplers brings downsampling and unique compression qualities. Crystalline AI samples turn into rocky, unaccounted-for occurrences. They tumble out suddenly, faithful in timing, but sometimes lawless in timbre.

And the open air! I couldn't get a board recording tonight, but I grew to understand the presence and significance of the sound of the room——the room where I've spent hours working on music. My living room.

Lastly, I am noticing the medium of my body. How and when I move to creep a slider up or trigger a sample, all of this music is mediated through my physical, kinetic self.

I am exploring the odd, uncanny, revelatory, and transcendent moments of rehumanizing AI music. I'm not yet sure I can do it. I'm not yet sure I'll know I've succeeded if I do. But it feels human so far. That must count for something.

September 1st, 2025

"Spoiler" [Collaborative songwriting]

November, 2025

Content Input:

AI Samples *Fender Telecaster*

Signal:

Suno *Marantz PMD221*

Ableton Live *POKKETMIXER*

SP-202

SP-303

I got the music setup done. I'm struggling today to find good samples. Suno switches to V5, and maybe that's affecting it. It's interesting to think that I'm not simply collaborating with AI. I'm also collaborating with Mikey Shulman. His decisions as CEO affect what Suno does. It's like if a bandmate suddenly started to play differently—be inspired by a new artist—get

new gear. I'm not in control of that. I can try to ask for more of what I'm looking for, and I can try to work my magic on what I get——but I have to engage with what Suno gives me.

November 2nd, 2025

After "Etude" and "Inch Strand Yuta", I felt that I had a solid idea of what might be possible with these modalities. While they typically require different workflows, aesthetics, and remediation techniques——and while they are in dialogue with different genres, cultures, and eras of music——they are both rooted in the subversion and experimentation of material culture. So much of my life's work has focused on the technology and media which is central to using samples to create novel sounds, and this was an appropriate starting point for me. Having some idea of what Suno is capable of (as of late 2025), and knowing the typical workflows and sensibility that I possess and that my music producer peers possess, I feel that I can reach some conclusion about AI-generated samples' potential role in these artforms. I will discuss these conclusions at greater length in the *Discussion* chapter, but it bears mentioning that "Etude" and "Inch Strand Yuta" have shown me that sampling AI-generated music can produce (1) passable, interesting music and (2) a quiet unease about the process and result.

Two days ago, my now 6-year-old son asked if I had a CD player. He was across from me at the dining room table on an unseasonably warm April day. We had just sat down to eat a lunch of homemade Yumm bowls and sliced pears; he hadn't touched his.

"Ehhhhh, I'm sure I do somewhere. Why do you want a CD player?"

"To play my CD!" he said mockingly.

I had forgotten that he had a CD. His mother and I have been trying to hold back the flood of on-demand, omnipresent streaming media with physical media——*an analog life* we call it. I am aware that CDs are anything but analog, but these days any culture that you can touch, see, and own feels immeasurably more analog than YouTube algorithms or Spotify "Daylists". I asked him what CD he had.

"Secrets in the Salt, of course."

Eighteen years before Yumm bowls with my son, I was in my childhood home with three other musicians. These were guys I had practiced with twice a week, every single week, and we were at my house to make a record. After having tried to record each instrument separately, we realized that we played better together. With my amp in my room, my guitar player Neil's amp in my mother's old room, my drummer's drums in the living room, and Daniel the bass player plugged directly into the mixer, Secrets

in the Salt set about recording their first (and only) semi-professionally recorded EP from winter 2007 to winter 2008. Separating the amps and drums allowed our recording engineer, Daniel Miller, to mix the volumes of each instrument separately. We recorded there for two full days.

The story of the making of our 2008 EP, *Krill Through Baleen*, is a comedic saga all its own. Nearly all of the house recordings would be scrapped. We re-recorded drums in a friend's ADU in Northeast Portland, I re-recorded vocals in an attic studio in a house in St. John and then again in an apartment in Old Town, and the keyboard and glockenspiel parts were overdubbed in Neil's apartment in Foster-Powell. Neil almost threw the recording engineer off a balcony for threatening to delete our recordings. Once everything was recorded, we sent the mixes off to be mastered by a renowned mastering engineer only to have to send them back twice to get the sound we wanted. All of this was for a little self-produced EP of indie twee post-punk music that only a few people heard. We took the EP incredibly seriously, and I can't for the life of me remember why.

The tensions surrounding the production of *Krill Through Baleen* reflected the tensions in Secrets in the Salt in general. I was the primary songwriter, and if catchy mid-2000s indie dance tunes with bizarre lyrics are your thing, I was good at

it. I was a good songwriter, but I was sloppy, unpredictable, and precious about my music. Neil, the de facto leader of the band, was an organized, type A person with no qualms about speaking his frustrations. He had attended The Lawrence University Conservatory of Music in Appleton, Wisconsin, and his approach to songwriting reflected this. I was a feckless 24 year old obsessed with the Weird Folk movement and electronic music, so we often butted heads.

For $200/month, we rented a practice space on the top floor of the McDowell Bag Company (now Fisher Bag Company)——a massive, haunting warehouse under the Hawthorne Bridge on SE Madison St. next to the train tracks. Our was a cozy, musty space nearly entirely exposed to the elements with the faint smell of mold and the adjacent glassblowers' occasional weed smoke. It was in that practice room that many of the band's arguments happened. I would bring some new pop song to the group, Tyler would grouse about the drum part I had envisioned, and Neil would correct my melodies or occasionally reject the song outright. He would also throw a wrench in the works by suggesting a bridge entirely in mixolydian mode or an odd time signature.

I took smoke breaks on McDowell Bag Company's fire escape overlooking the Willamette River and beyond the water, the lights of Downtown Portland. I was always skeptical of Neil's musical suggestions. They seemed either navelgazy or pandering

to what was popular in music at the time. But I was too passive to argue. I did my best to give his ideas a fair shake because, after all, I did respect him. Back and forth, we would take my cutesy songs and his nerdy additions and blend them. Slowly but surely, the disparate parts eventually sounded good together. I would often begrudgingly agree that he was right: his ideas made the music better. It might have taken a massive key change to fit my vocal range or different instrumentation to either signal a marked shift in the song or preserve continuity, but that kind of collaboration and interpersonal compromise made our music better——a lot better.

I began to recognize that neither Neil nor I could control what the other would write. It was, instead, our jobs to hear the other's ideas, envision them as part of a future Secrets in the Salt song, and run them up the flagpole. Over the years, we got better at this. It shifted from a sticking point in our songwriting process to the thing that defined it. I didn't know much about The Beatles——I still don't——but I always saw him as Lennon and me as McCartney. These are the kinds of grand comparisons as 24 year old might make. He was technical, sonically statuesque, aware of what was trending. I was sappy, catchy, and physically shorter.

I learned the virtue of collaboration at McDowell Bag Company and many of the divey venues we played around Portland.

As I sit here now in a post-COVID world perfectly designed for isolated creation with powerful DAWs, Zoom calls, and inexpensive mastering services and online distribution, I can't help but remember a powerful quote from Neil about the importance of tasteful musical "cheesiness":

"You can't put bologna in my orange juice and still call it orange juice."

None of us knew what that meant, but it made perfect sense.

My son ate his entire Yumm bowl in front of the speakers with *Krill Through Baleen* playing then ran off to play in the backyard. I stayed in the living room and played other recordings of ours and thought back to McDowell and the dive bar stages. I was reminded of the concerted effort I had to make to cede some control over the songwriting process. Neil brought in a few completed songs to band practice over the years. I was the least skilled instrumentalist, but I was the *songwriter*. I felt that my place in the band was threatened when he brought completed songs to us. One such song came on in my living room: "Manchester".

The walls of our practice space were lined with spraypainted egg cartons——the kind that hold 30 eggs each. We thought they improved the acoustics of the room. Neil brought "Manchester" in one night, and I was standoffish at first. He

hadn’t written lyrics, but the rest of the song was mostly fleshed out. Piece by piece, the whole band learned it. I could start to imagine what the vocal melody might be, how we might change the structure to create a build, what it would feel like to play that kind of song. It was different from our other songs——jangly and anthemic, dripping with reverb and held together by a transistor organ melody. It was the kind of song I would not have had the courage to write back then; I wouldn’t have even thought to write it. I had the opportunity to play it, alter it, and add to it, and it didn’t feel threatening. It was a challenge, and it was exciting.

It took eight attempts to get Suno to give me all the pieces that would become “Spoiler”. I thought of the name before I knew what it would sound like. When I started feeding Suno prompts, I was also unsure of the process I intended to take. For both “Etude” and “Inch Strand Yuta”, I had very familiar craftways in mind. Remediation was, for those songs, a straightforward matter. I approached “Spoiler” with very few plans. I knew that I wanted to structure it like a *song*. Aware that that term is loaded, I determined that it would have sections (intro, verse, chorus, bridge, outro), multiple instruments, a vocal melody, and lyrics.

I felt a growing frustration with Suno's results. With all previous experiments, it had given me pieces that felt somehow incomplete. I could hear my place in the production of new music almost immediately. It was as if Suno was generating drafts for me, and I was the one capable of molding the music into something real. But the prompts for "Spoiler" were the first ones that used Suno v5. While Suno lists the updates of v5 with a heavy use of buzzwords like "Intelligent Composition Architecture" and "Adaptive Creative Intelligence", there was a noticeable difference. When it was released, Suno claimed that v5 "maintains flawless structural coherence across any format——from punchy 30-second hooks to expansive 8-minute epics. Every section flows naturally into the next, with professional transitions and dynamic progression." In the face of this "Intelligent Composition Architecture", I began to wonder if I were needed for the production of this music at all.

It is important to note that songwriting (as opposed to sample-based beatmaking or sound design) does require a different set of skills. There is often more music theory involved and there is both an expanse of possibilities *and* some standard compositional tropes. As an artist, it taps into very different experiences and skills, and it requires me to access emotional and technical parts of myself that are distinct from beatmaking and ambient production. While there was certainly a

change in Suno's output after the release of v5, I also take these differences into account.

I built the instrumental portion of "Spoiler" on a single, drawn-out note, similarly to "Etude". I wasn't sure at first if the Suno track I titled "Spoiler 3" had yielded anything I wanted, but I used the stem splitter and downloaded the audio files anyway. Once in Ableton, I listened through the files, and they were all wrong. Then I noticed something. At the ends of notes in the "keyboard" stem, as the reverb would typically allow the note to fade out gracefully, instead that eerie, uncanny glitch sound rang out. I isolated the glitch. Boosting the signal (i.e., turning the volume up), I was able to get a single, unsettling note. Using similar tactics to my treatment of the "Etude" theremin, I drew the note out and could use it indefinitely.

It was precisely this digital meltdown that drove much of the rest of the track. I used a musical technique called *oblique motion*. This is when one note or a melody remains the same while the underlying chords change. If the melody or note are in the same key as the chord progression, it all works musically. This is a technique I have used in songwriting, and I have always found that it gives songs an anthemic, exciting sound.

I pulled the piano part from "Spoiler 5" and tuned it to match the single note from "Spoiler 3". I then pulled a keyboard

part from a Suno track I titled “Woodgrain” (another example of naming things after the first thing you can see) and fit it to match. Once these were tuned and in place, I needed a melody.

At the 2:14 mark of “Spoiler 3”, the composition changes. What had been a relaxed downtempo electronic track that may have been right at home on a 1990s *Pure Moods* CD suddenly introduces a melody. Also employing oblique motion, this string melody changes the mood dramatically. When run through the stem splitter, Suno automatically labeled this sound “Lead Vocals”, but it is clearly not a voice. It sounds more like an erhu (a two-string Chinese violin) than a voice. It has two simple melodic lines, which made it easy to fit into the preexisting composition [Figure 11]:

Figure 11

“Spoiler 3” Melody



Pitched down two semitones, this melody allowed me to add structure and intrigue to the piece.

Choosing to compose this entire piece in Ableton rather than remediate it through hardware was not originally an experimental choice. I had grand plans for “Spoiler”. I designed

it to eventually be remediated through samplers and tape, yes, but the ultimate goal was to remediate it through *people*—bodies and minds and histories and talents. As I was wrestling the "Spoiler 5" chords (ones I would never think to write) and putting them in an order that worked with the "Spoiler 3" melody, and as I reimagined the whole piece in 5/8 rather than its original 3/4, I had human collaboration on my mind. What made "Manchester" work all those years ago were songwriting that I would not have thought of on my own *and* the collaboration of other humans.

To this end, I wanted to write every part. In order to make it *feel* like a traditional song, I decided to add drums, guitar, and vocals. To create the drums, I used a plugin called EZdrummer 3 [Figure 12]. While not the most sophisticated (nor expensive) plugin, EZdrummer uses recordings of real drums in a studio setting and sounds, to the unexpecting ear, like live drums.

Figure 12

Toontrack "EZdrummer 3" Plugin



I wrote a very simple drum part that kept time and added a minimal amount of dynamics. I also recorded a guitar part toward the end to add to the dynamic growth of the song.

My ultimate goal was to finish a rough version of "Spoiler" and use it to recruit live musicians to re-record certain parts. The piano/keyboard part would remain, as would the erhu melody, but the drums and guitars would be recorded live. At this point, I was even envisioning being able to play the song live as an

ensemble. Before I could do any of this, however, I needed to write a vocal part.

The album *How Will I Live Without a Body?* by Loma (2024) was my third most listened-to album of 2025. In retrospect, this seems appropriate. Most of my thoughts had turned to that titular question as I worked with a disembodied AI model to see what role, if any, humans had left to play in making art. "Affinity", the track from *How Will I Live* that has the most plays on Spotify, starts with the lyrics:

What did you see?
How have you been?
There are lines
That never end
And from the day
That I could talk
I had to know
How will I live
Without a body?

I saw a parallel in these lyrics to our current moment. When I hear Emily Cross link speech to the central question——"How will I live without a body?"——I think at first of the existential dread that I felt as a child once I understood that my body would someday die. There is a kind of predictive trait to speech. It allows us to understand a future, organize

our imaginations. Once we know how to do that, the big questions come.

Those lyrics resonated with me for an entire year. I spent all of 2025 wondering, *if the advent of language in a child occasions existential questions about the body's transient nature and whether we endure beyond its death, does the advent of human language in computers occasion existential questions about the human body's worth or importance and whether it is needed to create?* The question haunted me, and it was at this point in the experiments that it had grown to be unignorable. With "Affinity" in mind, I wrote the lyrics to "Spoiler". I wondered if it would be more experimentally sound to get a chatbot like ChatGPT to write them——just to test the ultimate bounds of the question. But I ultimately decided that it would be more collaborative if I wrote them, just as I would in Secrets in the Salt.

[It is important here to note that the lyrics to "Spoiler" touch on many different ideas that came to mind in the writing phase. I expound on some of these ideas here, in my findings, and in the discussion section. Some, however, are simply my impressions during that November in my home studio.]

I love the way that Loma opens "Affinity" with questions. Greeting the listener (or the interlocutor) with curiosity is

somehow both disarming and foreboding. I structured the lyrics to "Spoiler" similarly:

Do you happen?

Do you need? Do you want (?)

All of the raw things?

All of the rot?

Is it over (?)

What I feel? Do I want (?)

All of the cold things?

All of my body?

I conceived of the first verse as a line of questioning from a human to an AI model. Imagining this conversation and what I would ask, the first question that popped into my head was, "*Do you happen?*" Often, I think of lyrics before they fit into an idea, and I interrogate whether they fit with that idea. This question seemed appropriate. I had, for years, been curious whether to think of AI models as *being* or *happening*. Throughout these experiments, I had toyed with the idea of Suno *being*. That is to say, I had thought of it as a subject——something akin to a human musician with direct, willful agency. At this point in the experiments, that thought experiment was beginning to crack. It began to feel like Suno as a songwriter is something that *happens* rather than something that *is*.

The next lines begin a lyrical pattern of using short questions as both complete inquiries (e.g., "Do you want?") and as lead-ins to longer questions ("Do you want all of the raw things?") I indicate this ambiguity with parentheses around the question marks.

"*Do you need? Do you want (?) All of the raw things? All of the rot?*" As I wrote these lines, I began to imagine what it might be like for an AI agent to suddenly be human. AI may be able to behaviorally exhibit intelligence and pass the Turing Test, but the everpresent question of its capacity for desire seems harder to answer. Furthermore, an imagined AI becoming fully embodied and organic might marvel at the feeling of spring sun on its skin or the taste of pears, but what would it make of our experience of decay? The fear of how we will live without a body?

The conversation shifts. The speaker in these lyrics starts directing their questions inward. "*Is it over (?) What I feel?*" The question of whether "it" is over has been on my mind for a few years now as well. I have a hard time defining "it". The 2020 song "I Know the End" by Phoebe Bridgers is the closing song of her album *Punisher*, and it mirrors the anxiety I have had about "it" being over. In the triumphant and tragic coda of the song, Bridgers lists a number of images of late-stage capitalist America ("*A slaughterhouse | An outlet mall | Slot*

machines | Fear of God") before proclaiming, "*The billboard said 'The End Is Near' | I turned around, there was nothing there | Yeah, I guess the end is here.*" She ends the song with frantic screaming that dismantles the soft melancholy of the rest of the record.

In the context of "Spoiler" and of this experiment and this technological and geopolitical moment, the "it" here could be anything from the sustainability of life under capitalism, the necessity of human minds and hearts in artistic creation, the stability of our planet suffering through climate change, or the survival of humanity under threat of partial or complete eradication by any number of catastrophic means. This is obviously not an exhaustive or closely examined list of anxieties. Rather, I am drawn to my obsession with "it" being "over" more than truly understanding the specifics, and I reflect that in these lyrics.

The end of the first verse of "Spoiler" presents a binary question: "*Do I want(?) All of the cold things? All of my body?*" Still directed inward, the question of whether "I" want is a reflection of the question posed to the AI model ("Do you want?"). I had been so embroiled in this experience and so dedicated to the possibility of intra-action that I began to feel some existential doubt as a human agent. Having the human speaker ask themselves whether *they wanted* put them to the same

test they had put the AI model through. Are the two truly different? How could the speaker tell? And is the speaker at a crossroads of accepting a completely digital existence "*all of the cold things*" or do they want to retain the physical self ("*all of my body*")?

The second verse of "Spoiler" interrogates the AI model with more suspicion. As I was writing the lyrics, I began to feel that Suno (and ChatGPT for that matter) had duped me. They feigned human emotion. Suno brought forth the wailing and the grumbling and the aching of human music while ChatGPT lauded me for my efforts and summed up songs for Suno prompts as if it had listened to them after a break-up or before a first date. But these things had never wailed or ached or shown up to a first date early just to have a quick Manhattan to calm the nerves. The curiosity of the first verse and its interest in what AI might feel if it were to become physical erodes in the second verse and becomes the understanding that AI *simulates* these things. AI-generated content began to feel like mockery.

Were you timid?

Were you sweet? Do you want (?)

All of the soft things?

All of the heat

Is it over?

Where you stand? Where you breathe?

Say all the old things.

Wither like poppies.

The second half of the verse has that same line of self-reflexive questioning as in the first verse. Standing and breathing and saying are all embodied things. They exist in the material. The verse ends in the imperative. The speaker reminds themselves to say the "old things"——things that predate this technological moment and that are situated within humans' material existence. The last line returns to the embodied concept of "rot" with the word "wither".

Poppies wilt quickly in the heat, and they are often used to symbolize sleep and death.

The chorus is simple:

So, spoiler

So caring

I came up with the name of the song before anything else. I wrote the chorus last. Unfortunately, I didn't write down what possessed me to give it this name (The first random thing I saw? The last word I heard spoken?). The Suno files from that time are all called "Spoiler", so I know the name came first. By the time I wrote the chorus, it seemed fitting. A *spoiler*, in this sense, has two meanings. First, it is information about the future provided prematurely. We typically use this word to indicate details about a movie or television show that, when

given, reveal plot points. I imagined my experiences with AI collaboration as a kind of omen of a possible future; my growing unease portended something unsettling. I also conceived of a spoiler as *something that spoils*. That is to say, I began to suspect that AI was *decay*. It started to feel that Suno and ChatGPT, with whom I had spent so much time, was, in a way, undead.

To call it "caring" is a sardonic gesture. It slowly felt more and more like there was nothing there. At least, there was nothing there that cared. There was only me and this spoiler.

I had moved the production of this song to my music room. Having wired all of my samplers and tape machines through a massive mixing board on my desk, I was able to access all of them as well as my guitars, basses, keyboards, and countless random instruments strewn around the room. My station is against the north wall. On the south wall, there is a small chair——squat with modern design and imitation black leather. That's where Stephanie sat as I played "Spoiler" for her for the first time.

She was one of five or six local musicians I had reached out to. I searched Instagram, Craigslist, and a website called Bandmix for musicians interested in starting bands or just jamming with other musicians. One drummer listed his session rate (a fair rate, but far out of my budget); another seemed

interested. I looked for Portland vocalists whose voice might work for “Spoiler”. My pitch was the same for every musician:

> ...my PhD is a study on whether people can make music that feels human while collaborating with AI-generated music (which is something I'm still on the fence about). Rather than using AI to improve or change existing music, I'm taking AI-generated music and sampling bits of multiple tracks to create something new. Then I'm sending those sounds to physical objects (e.g., cassette machines, samplers, and other weird media) to bring them into the physical world. Alongside that, I'm layering live instrumentation (me on guitar, bass, trumpet, etc., a live drummer, and maybe keys).
>
> In order to humanize the music while exploring digital collaboration, I want to bring in other humans to add their abilities and sensibilities and spirits.

I followed this up by complimenting them and saying I think they might be perfect for the track. After much back-and-forth, only a drummer (Robin) and a singer (Stephanie) agreed to collaborate. Reading my pitch to musicians, I can see my own trepidation——a growing suspicion that this project had a thin supposition. I had been able to give it all the benefit of the

doubt, but now that I was bringing other artists into the project, I felt a serious need to defend it——or rather, to apologize for it in veiled terms.

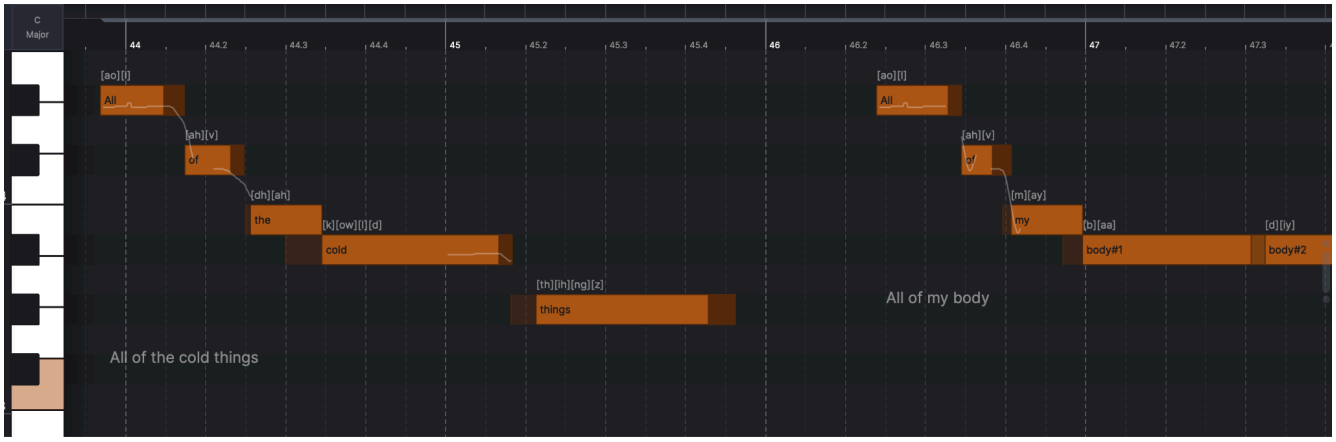
In the months that I had been conducting this experiment, AI-generated music had entered more mainstream conversations. Musicians on TikTok and Instagram, writers on Substack, and music critics on YouTube had begun to take notice of the growth of AI-generated music in Spotify playlists and YouTube music streams. Threats to anthropogenic music culture had begun to escape the purview of tech experts and forward-looking artists, and they started to be a broader concern. Hot takes on social media decrying Suno and Udio started trending; artists began recognizing their own music in AI-generated tracks; and musicians' entire catalogs were being fed into data sets to generate "new" music that sounded remarkably like the original artist. The other shoe had dropped, and a consensus seemed to have been reached: AI music is bad. To sell this project to other musicians——to convince them that it was turning into a good-faith repudiation of AI——was challenging. When Stephanie showed up to my home studio, I gave her the same apologetic spiel.

In order to make the vision I had for "Spoiler" more understandable to the musicians I intended to work with, I had to construct the vocals entirely. I feared that simply having a

vocal line and lyrics written out with a vague understanding of how they would fit over a primarily AI-derived instrumental would be ineffective. I used an AI vocal synthesizer called ACE Studio. This software allows users to choose from over 140 vocal profiles (models trained on real voices) and enter lyrics, refine phonemes, expression, breath, etc.. [Figure 13]

Figure 13

ACE Studio Piano Roll



I entered all of the lyrics to “Spoiler” in ACE Studio and meticulously dialed in each parameter to make them sound as natural as possible. I was surprised at how human they actually sounded. Yes, I could tell that they were AI-generated, but I could see how, with some practice on my part and few updates on ACE’s, this could be an undetectable tool. I was used to this feeling at the time, though. Suno had already begun to sound nearly indistinguishable from anthropogenic music. It used to

feel useful, eerie, *and* exciting. By the time I finished with the "Spoiler" vocals, it just felt eerie.

I played "Spoiler", complete with vocals, programmed EZdrummer 3 drums, and my Fender Telecaster, for Stephanie. She seemed impressed by the song and by my excited, somewhat nervous explanation of everything she was hearing. I had repitched, retimed, chopped, stem split, added to, taken away from, arranged, written, and any other thing I could think of to make it my own. I felt an embarrassed urge to explain how much *me* she was hearing.

Our time was limited——not enough to actually collaborate——so we said goodbye with plans to meet again and begin practicing and recording her vocals. And we have stayed in touch, but I never returned to the track.

It was just me and this spoiler. It had spoiled something. Or rather, it had exposed what had been spoiled.

“Spirit Box” [Experimental sound design]

November, 2025

Content Input:

AI Samples

Signal:

Suno

Boss RC-50 *Califone Cardmaster*

Magnetic platter (3.5” Floppy Disc) *2 x 1/4” Tape on cardstock*

In the *Geogaddi* days, just after high school, my friends and I would meet at Java Bay. Open 24-hours, this cafe was home to sleepless twenty-somethings armed with halfbaked philosophical discussions, psilocybin mushrooms and weed for sale, grating noise music on the house speakers, long-haired guys with acoustic guitars and Radiohead covers. Java Bay was at the edge of civilization. Any further east, and you’d be in a dark wilderness that followed the Columbia River Gorge all the way to the tiny Oregon towns of Hermiston and Pendleton. East as the crow flies, the next real decently sized city was Bozeman, Montana, 564 miles away. Loitering on the sidewalk in front of the cafe, haunting the Gresham/Troutdale, Oregon area, my friends and I often made plans to venture into that dark.

There is a long history of the use of media to find ghosts.

“Boyka boyka boyka”, as we used to say.

In my garage, there was a box. This box was filled to the brim with MiniDV tapes——little video recorder cassettes about the size of a hotel bar of soap. The DV in MiniDV stands for “digital video”. At nineteen years old, I spent one of my first full paychecks on a Sony MiniDV camcorder from Circuit City for the purpose of making music videos and chronicling my friend group’s ghost hunting trips.

Two weeks ago, I dug the box out of the garage and opened it. Eighteen MiniDV tapes barely fit in the box and came sliding out and falling on the floor. With a fair amount of adapters and cables, I was able to plug a MiniDV camera into my modern TV and watch our adventures from all those years ago.

We knew of a kid who knew of a hole in the fence.

Stutter Beats and I kept in contact about collaborating, but my interest fizzled out. By late December, I was convinced that I had stumbled upon something unholy with this AI music. It had altered my understanding of music making. I sometimes wondered if I had done nothing more than prove to myself that

human musicians, specifically those who make recordings, were soon to be obsolesced. My efforts had felt desperate. I had been trying any and all techniques I could think of to obscure the fact that there was something ominous and uncanny about the music that Suno was able to create. These experiments were an effort to make AI music more *human*, but I couldn't shake the idea that I had simply dressed them up in the noise of the physical world. Tapes and circuits and the open air don't mind if you use them for the wrong things. People do, though. I couldn't bring myself to conscript any other living soul into this work.

In the 1920s, Thomas Edison worked to develop a device capable of detecting the presence of spirits. Called the *spirit phone*, Edison believed that he could communicate with ghosts. In a 1920 interview with Forbes, he said:

> If the units of life which compose an individual's memory hold together after that individual's death, is it not within range of possibility to say the least, that these memory swarms could retain the powers they formerly possessed…I am hopeful that by providing the right kind of instrument, to be operated by this personality, we can

> receive intelligent messages from it in its changed habitation, or environment. (1920)

It was Edison's intention to create a device that spirits themselves would use, rather than one that the operator used (other than for the purposes of detection and measurement). The spirit was, in this sense, the subject and agent. Edison never completed his spirit phone. Or, at least, he never revealed it to the public and no prototype of it has ever been found.

An 1921 issue of *Light: A Journal of Spiritual Progress and Psychical Research* provides details about a new invention by English analytical chemist named F.R. Melton. Melton's *psychical telephone* "worked with perfect accuracy but could only be used in an atmosphere of dead silence. It was so sensitive in picking up external sounds that these obliterated the low psychic waves set up by the spirit friends." ("A Spirit Telephone," 1921 The psychical telephone was, put simply, a standard 1920s telephone with such amplified sensitivity that it could detect messages and the very presence of spirits.

Spirit photography, a practice begun decades before Edison's and Melton's attempts, also used new technology to detect ghosts and poltergeists. While the story and use of spirit photography is a much more well known phenomenon——especially because of the coincidence of the

invention of the photograph with the height of the spiritualist movement in the 19th century——the use of audio media in the detection of disembodied presences is prevalent (National Science and Media Museum, 2022). Both friendly with and at odds with skeptics such as Harry Houdini (Greene, 2021), Edison's and Melton's attempts at merging science and the occult were common in the late-19th and early-20th centuries. Ultimately, these and other inventors were unable to reconcile the scientific and the spiritual to any universality accepted degree. To amateur inventors and believers, however, this inability to merge the two schools of thought was inspiring rather than discouraging.

Dustin hung around Java Bay but was never a central figure. It wasn't that he was disliked. Rather, he was squirrely, fidgety. He wanted to be liked——by the people with fast cars, by the psychonauts, by the underground hip hop emcees, and by the midnight geocachers and ghost hunters. It piqued his interest, then, when he overheard my friends and I mention Columbia Brick Works.

Founded in 1905, Columbia Brick Works lies on the eastern bounds of Gresham, just north of Johnson Creek. It is a series of century-old brick buildings filled with massive ovens and wooden administrative buildings. In recent years, the works has started producing again, but in the Java Bay days, it had lain

dormant for decades. Antiquity and decay were enough to convince my friends and I that it must be haunted. We had tried to infiltrate the property, but it was sealed up tight with a privacy fence and imposing gate. “If only we could get in”, we would say, in our four-man circle of Marlboro smoke and late-night coffee.

“I know a way in,” said Dustin, eavesdropping. He told us that there was a hole in the fence maybe a half mile down a trail that ran along the property. Insisting on being a fifth person in what was, realistically, a four-person car, he directed us to the best place to park to keep from being spotted by police. It was around midnight, and the cops weren’t keen on parked cars near notoriously trespassed properties.

The hole in the fence was just wide enough for one person at a time. We crawled through, and once we were all safely on the brick works’ property, we saw through the darkness a massive brick building, abandoned machinery, and a small wooden structure with dark windows.

2025 was winding down, and I hadn’t touched Suno in nearly three weeks. The unsettling feeling it had given me and the growing guilt and confusion behind it all had made it unpalatable to me——unclean almost. I was, however, determined to see these experiments to the end. I knew I had one more thing I

had to try. I wanted to make a piece of music that reflected how the process had made me feel. I thought about "Dawn Chorus" by Thom Yorke, a gut wrenchingly melancholic song with a throughline of defeat; "Easy" by Son Lux and Rafiq Bhatia, a haunting electronic piece with dreary, unnatural sounding vocals; and "Gyroscope" by Boards of Canada, a mainstay of the Java Bay ghost hunting days, a horrifying carousel of a song. The lyrics to "Gyroscope", if it can be said to have lyrics at all, are a sample——the heavily distorted repetition of numbers from E05 "CynthIA", a CIA-run numbers station. A numbers station is a Cold War espionage tool used by capitalist and communist powers to communicate with their remote spy networks over shortwave radio. The broadcasts are typically repeated strings of numbers that correspond to "one-time pads"——deciphering instructions held only by the spies for whom the broadcasts are intended. The countries from which these broadcasts originate have only recently begun to admit that these numbers stations are, in fact, spy communications.

Two, three, four, five, six

Seven, eight, zero, zero

Zero, nine, nine

Zero, zero, nine

Zero, zero, nine

One, two, three, four, five, six, seven, eight

Nine, zero

Zero, nine, eight

Zero, nine

"I dreamed the sound of it, and although I've recreated dreamt songs before, I managed to do that one so quickly that the end result was 99% like my dream," said Marcus Eoin in a 2002 interview for HMV.com. "It spooks me to listen to it now" (Pytilk, 2002).

I intended to create something eerie and devastating with these songs in mind.

Moody, very understated cinematic piece, Sad with swells and odd textures, Slow in tempo, Somber in tone
Weirdness 100%
Style Influence 100%

Notice that I turned the "Weirdness" and "Style Influence" settings to 100%. I made this change on my third attempt in Suno at finding something that matched the unsettling feeling I had been looking for. The other results were sufficient——dramatic, almost tech-noir pieces of music. I could have made a serviceable "Dawn Chorus" knock-off with them, but I wanted to

push things further. The result is a sound *almost* unlike anything I have ever heard.

I stare at my flat screen television. The MiniDV tape pulled from the box in my garage shows my friends navigating piles of discarded bricks, flooded basements, and abandoned offices. In the footage, I sweep the camera around and show the massive ovens, illuminated by Sony's patented "NightShot", an infrared mode that slightly improves low-light video. We are looking for apparitions and "orbs". In the ghost hunting world, an orb is a floating ball of light that ostensibly indicates the presence of a spirit. These are invisible to the naked eye, but they show up on film. The theory goes that they must show up on digital video too, right?

In retrospect, the inference that a floating ball of light caught on moving pictures is a ghost is entirely unfounded. Absent a human form, it's impossible to tell if an unexplained image is a wayward spirit or an out-of-focus piece of dust. We caught a few orbs on camera during our adventures. The brick works was particularly fruitful. It was particularly dusty. Damascus Pioneer Cemetery in Damascus, Oregon and Edgefield Lodge in Troutdale, Oregon had a few fuzzy balls of light, too.

But we knew of a better means of ghost detection: sound.

Electronic voice phenomenon (EVP) are perceived voices in audio recordings that were inaudible at the time of recording. Unlike supernatural sounds supposedly detected by Melton's psychical telephone, EVP do not require highly sensitive recording equipment. Examples of EVP often occur in audio recordings in supposedly haunted locations. It's no coincidence that these recordings are often made by ghost hunters——the very people looking for EVPs in the first place. In between the ghost hunters' chatter as they explore a mausoleum or historical battlefield, a faint noise sneaks through. When ghost hunters post examples of their EVPs online or play them on podcasts and radio shows, they often turn the volume up to incredibly high volumes at just the moment when the EVP happens.

Ironically, the only way that EVPs are even slightly convincing as proof of a supernatural presence is when they are presented alongside a visual medium. The whispered, barely audible, mangled voices of the beyond are almost impossible to understand. They sound like a mumble or a brief hum rather than complete words. When accompanied by text, however, the listener can start to make out the words.

"We're not dead."

"Plastic eyes."

"You missed me."

What originally sounds like the grumble of a wooden chair scooting across the floor or the squeak of hinge suddenly transforms into an unnerving, ghastly message from some lost soul.

We listened for such messages upon returning from the brick works, the cemeteries, the abandoned houses. We would sit for hours, headphones at full volume, listening for a message in the amplified tape hiss of our MiniDV tapes. "What was that?" one of us would say.

"It sounded like_____."

"No, I'm hearing_____."

Without a caption to tell us what we were hearing, we could never agree.

We never did capture any intelligible EVPs. Despite this failure of our supernatural studies, however, we had become obsessed with the idea of hearing hidden things——electronic voice phenomenon, backwards messages in recorded music, and even the perception of word shifts when words are quickly repeated.

Say, "wake up" ten times fast.

Now, do it again, but hear the nonsense word "boyka" over and over again. As the "p" from "up" elides into the "w" from "wake", it moves your lips to make a soft "b". The "ake" from "wake" turns into "oyk". Lastly, the "uh" sound of "up" is a standard schwa, which can be written as the letter "a". Boyka.

Suno's "weirdness" slider is essentially an ML *temperature* dial. An AI process that has a higher temperature setting introduces more chaos into its output, whereas one with a lower temperature introduces more adherence to the organized nature of its training data. This could be the organized way that images are typically composed, sentences are typically structured, or music is typically written and recorded. A higher weirdness setting in Suno equals a higher temperature, and the result of an extremely high temperature is incredibly chaotic.

Pushed to 100%, the weirdness setting absolutely mangles the resulting audio. Rather than sounding like a carefully crafted avant garde interpretation of the prompt, the audio is more akin to music from the harsh noise genre. Nearly all music I generated with the weirdness slider at 100% sounded the same. Almost none of the prompt survives. What was supposed to be a "*Moody, very understated cinematic piece, Sad with swells and odd textures, Slow in tempo, Somber in tone*" sounds like every other piece at maximum weirdness.

It sounds like the death of sound——like all meaning and corporeality are gone. It is an avalanche of noises, each unrelated to the next. Jumbled and wild, it overwhelms and horrifies. I can only describe it as the sound of a radio dial being spun at breakneck speeds, catching quarter-second bursts

of a guitar note, a woman speaking, a snare. Between these punctuations of nearly intelligible sound is something like FM static. There are no dynamics. There is no theme. As rapidly chaotic and random as it is, each moment is indistinguishable from the next. It is a bottomless bin filled with human audio parts being dumped endlessly into your mind.

And there I sat, the sneaking suspicion that I had stumbled upon something horrible with these experiments had become manifest in this Suno sample. I felt as though I could hear all of the tiny pieces of human culture that Suno had chopped up, ready to reform into something cohesive and believable. The *idea* of human culture having been cut up into tiny tokens became, in that moment, the experience of it. I heard our heritage garbled and spewing out of my speakers in an unrelenting torrent of sound. It wasn't the eerie curiosity of the sound of a stem splitter. It was the brutal and grotesque fact that AI gluts itself on our culture, and that when the temperature gets high enough, it vomits the contents of its stomach back at us.

A *spirit box* (also known as a *ghost box* or *sweep radio*) is a device that sweeps across shortwave or AM frequencies, sometimes introducing white noise, in an attempt to hear messages from spirits. Author and paranormal investigator Frank Sumption is credited with its invention in 2002. He called this

first spirit box “Frank’s Box”. My ghost hunting friends and I had heard of spirit boxes, likely on the late-night AM radio show “Coast to Coast AM”. They were (and still are) prohibitively expensive, so we never bought one. A MiniDV camera and a good imagination were enough for us.

The brain’s tendency to generate meaning and order in otherwise unorganized or chaotic audio is called *auditory pareidolia*. Whereas regular pareidolia is the tendency for our minds to fabricate visual patterns (especially images of faces) where they do not exist, auditory pareidolia does the same for sound (Nees & Phillips, 2015). We were experiencing auditory pareidolia when debating the phantasmal messages on our MiniDV tapes, when we listened for secret frequencies while listening to binaural beats, and while we found the boykas of the world.

That younger version of me, casing the grounds of a cemetery and believing cigarette smoke to be a wispy in my camcorder’s viewfinder, would be disheartened to hear me say that I don’t think we ever saw a ghost. We never heard a ghost. We never captured one on MiniDV or any other medium for that matter. I’m not here to say they don’t exist. In fact, they’re nearer than I thought——living in data sets and crossing over from the spirit realm into ours through generative AI.

They say that, when you encounter a ghost, the room gets cold, but it took the highest temperature in Suno to find one.

I had become horrified by my creations. I had no more reverence or good faith for the process or for the results. The only holy things left in the room for these production sessions were just that: things. With a minute-long string of the "Spirit Box" sample——nothing more than a raging flood of noise——I turned to two final objects: the Califone Cardmaster and the Boss RC-50 live looping pedal.

I routed audio from Ableton into the RC-50. The function of the RC-50 is to be able to mark the beginning and end of where you want a piece of audio to loop. It is regularly used for live instrument performance. A guitar player, for example, presses a pedal to begin recording the loop and simultaneously begins a chord progression. At the end of this progression, they press the pedal again, and the RC-50 begins playing that section of audio back in a loop. The musician can then layer percussion, vocals, or other instruments to add to that loop. Ableton itself has nearly identical looping capabilities, but I wanted, one more time, to see if mediating these samples through the body might give them a bit of life.

There are occasional tonal snippets of audio in a 100% Weirdness Suno track, but the majority of sound is a cacophony

of voices, both speaking and singing. They speak and sing with little-to-no rhythm. Running the sample to the RC-50, I am able to hear these voices even before starting the loop recording function. Choosing a point at random, I pressed the loop record pedal, waited a few seconds, and pressed it again. I performed this process a number of times to see if I could stumble upon a loop that felt musical. I was banking on that auditory pareidolia. I listened closely for a beat, a phrase, a melody. Because I was the performer *and* the listener, and because I was choosing when to start and stop the loop, I heard in "Spirit Box" a convergence of aleatoric (i.e., musicality and patterns created spontaneously or probabilistically by the performer) and apophenic (i.e., musicality and patterns generated by the listener) music.

Rhythms started to emerge. Phrases not unlike those divined by Frank Sumpton's device jumped out at me. Many times, I had to strain to try to find musical patterns or any sense or meaning in the noise. Suno seemed to understand this noise as being made from distinct parts: vocals, drums, keyboards. I used the stem splitter to further explore the output of the "Spirit Box" samples. Each stem provided a slightly different character. One contained shorter, more clipped bits of audio. One was just voices. Yet another sounded like an old vinyl recording of a heavy wooden box being dragged across the floor.

Without the captions that had been so useful in deciphering EVPs all those years ago, I strained to pick out voices. I was listening for messages from a different *beyond*. After all, how different were these ghostly voices than the ones we hoped to find in cemeteries and brick works? They were disembodied and trapped in a placeless realm. They sounded desperate to be heard and to be understood. But data sets are a thresher, and the voices are disfigured and fragmented.

"It looks another motion mort."

"It's tough enough to eat it."

"Tell us [unintelligible] dinner plate."

Funny, I thought. *So many of the voices seem to be talking about eating*.

I tried to layer other samples and play live instruments on top of the garbled words. It seemed neither musical nor human. I felt satisfied that I had proved the connection between the electronic detection of spirits and Suno tracks at 100% weirdness. This discovery didn't fill me with the excitement and wonder that EVPs did in my late teens. They filled me with dread. I wanted to destroy what I had made. This is not to say that I wanted to delete it; there was no erasing the experience of having made it. I wanted to inflict damage to it.

Years prior, I had experimented with creating loops with the Califone [Figure 14]. While it normally uses factory-made

37cm or 18.5cm long cards with ½" magnetic tape about ½" from the bottom of the card, I had tinkered with cardstock purchased from the local craft store, double-sided adhesive tape, and repurposed ¼" magnetic tape. After applying two ¼" strips of tape to match the orientation of standard Califone cards to a much longer strip of cardstock, I would loop the cardstock back on itself, carefully aligning the ends of the tape to create a nearly seamless loop [Figure 15]. This gave me the notoriously lo-fi, unsteady tone of the Califone in a perpetual loop. By measuring the loop perfectly, I could sync it to any tempo and produce perfectly timed drum and melodic loops.

Figure 14

Califone Cardmaster (CAR2010)

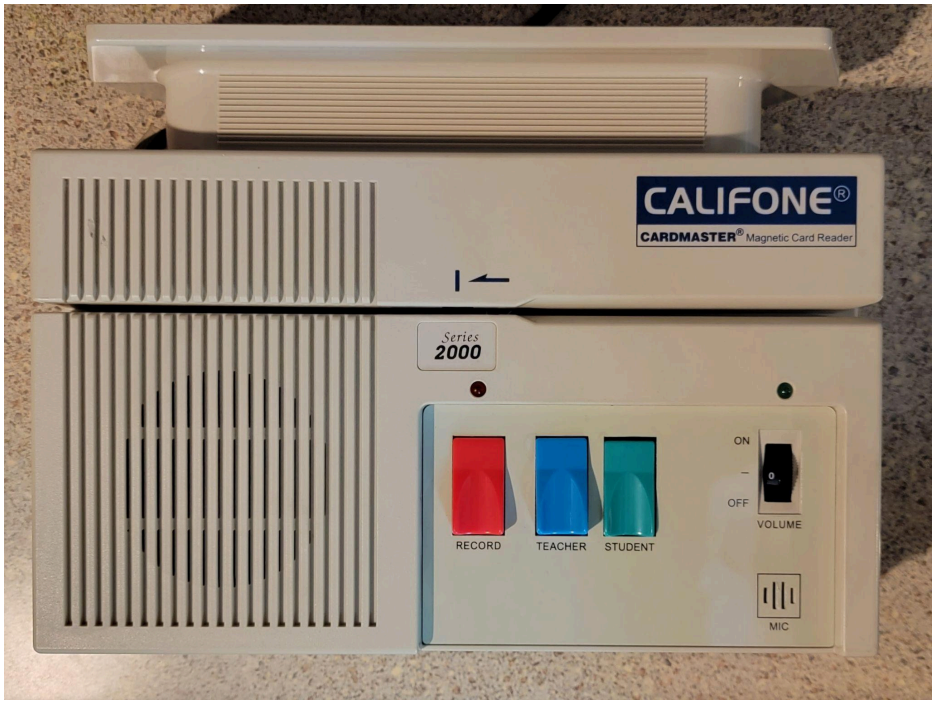


Figure 15

Homemade Tape Loop for Califone



I staged the "Spirit Box" sample in Ableton to play for a full minute and sent the signal to the Califone. At a point in the audio that was not predetermined, I pressed "record" on the Califone. Tracing a permanent marker dot I drew on the cardstock, I made sure to fill the tape for a full loop.

This resulted in a repeating recording of chaotic noise made even more chaotic by the Califone's limitations and incredibly hot (i.e., loud) inputs. The loop was wildly distorted. It was all destruction. There was no auditory pareidolia that I could discern——no pattern that stood out to me. I listened for voice messages, or something musical,

rhythmic. All I heard was noise. The original signal was audible, but any semblance of cohesiveness, even to the smallest degree of spoken words, was catastrophically damaged.

Filled with a kind of reckless cynicism and desire to find the absolute edges of this process, I tried a technique with the Califone that I had never attempted. The medium in a 3.5" computer floppy disk is also ferric oxide. It is possible to record audio to these disks. I tore a new floppy disk apart and removed the thin circular magnetic platter. I had seen videos of mad scientist bedroom producers placing the platters in the Califone right at the read/write heads. The platter spins around like a vertical record. The loop it creates is nearly 4.5 seconds long. Because the Califone's motor is designed to pull the medium *forward*, it does not naturally rotate the disk. It is necessary to hold the disk in place with something like a pin in the center hole in order for it to rotate rather than run straight through. Without constructing a rigid structure to hold the disk and allow it to rotate, it is necessary to stabilize it by hand.

Hands (bodies) are unsteady. Ferric oxide is an imperfect medium. The Califone's circuitry, especially when used for purposes other than intended, ages over the years and distorts the signal. When Suno's chaotic 100% Weirdness samples are sent through chaotic media like bodies and magnetic tape and

circuitry, the result is complete annihilation. This final experiment——Suno via aging equipment, misused media, shaky hands, a lifetime of stories and experiences that brought me here——produced nothing but a completely destructed sound. There is nothing left of the training data. There are no songs. There is no culture that precedes this moment of remediation.

There is only noise now.

Chapter XI

Findings

By the time I had finished my work on "Spirit Box", I knew I could go no further. This is not to say that I had no more ideas——no new ways to distort and remediate and materialize. I had ordered AM radio transmitters and old analog telephones. I planned on sending Suno signals through them to hear what AI-generated music sounded like through crystal oscillators and ancient, tiny microphones. (In fact, the way to turn an old telephone headset into a microphone is to reverse the wiring on the earpiece, not the mouthpiece, and use it as a microphone. Speakers are often used in this way to create unique microphonic devices). In spite of my love of strange audio media and excitement about using them, I felt I had discovered what I intended to discover.

I finished work on "Spirit Box" on December 18th, 2025. Upon hearing the different iterations, transcribing whatever pieces of spoken audio I could construct in my mind, and breaking it all with the Califone and floppy disc medium, I exhaustedly and gladly ended my research. For weeks, I sat with the growing unease I had felt during the five-month process. I felt as though I was either on the edge of some new perspective about AI-generated art or that I had only worked to confirm and

flesh out the consensus among many of my musician friends that AI-generated art was evil, immoral, unethical, apocalyptic, etc. It was, if I'm honest, a confusing and rather depressing time.

What had I set out to prove? That a machine designed to consume human culture and return it to us for a profit was useful? Artistically relevant? And had I proven that? I felt a tremendous amount of guilt and not a small amount of shame that I had conspired with such a thing.

With a good month or two of wallowing and despairing under my belt, I returned to my notes and held them up against my research questions. I believe that I answered them and that I answered them thoroughly.

RQ 1: How do the ethics and nature of human→human music sampling apply to and inform us about the ethics of human→AI sampling sampling?

I began with the belief that there was a dialogic force within human→human music sampling that allowed us to negotiate and determine the ethics of the practice. Initially, I believed that this force was driven primarily by musical relationships. The conceptual relationship between sampling artist A and sampled artist B could, in my mind, be investigated, and the transparency of this relationship was how ethics could be

understood. Furthermore, the fact that there was transparency in the relationship was, itself, ethical. To answer RQ 1, I first asked two subquestions:

The first was: *What are the cultural and aesthetic ethics of human→human sampling?* I found through my autoethnographic memoir that the cultural ethics of human→human sampling do rely on traceable, Latourian relationships between artists. What I found that I did not expect, however, was that these cultural ethics are also determined by relationships between all artists involved, the material apparatuses and culture they have access to, and their situatedness in life.

Where cultural and aesthetic ethics meet, I found that relationships between sampling artists and artists they are *not* sampling are also significant. The influences I felt from Team Sleep or Boards of Canada, for instance, informed the way I (Artist B) sampled artist A (not Team Sleep or Boards of Canada). This begins to describe a web of relationships that, because they are traceable, are ethically navigable. Of course, this extended out to my relationships with people, places, and objects as well. I could understand my own processes, preferences, choice of apparatuses, aesthetic decisions, genre constraints, etc. by recalling the moments in my own life that inspired them or made them materially or epistemologically possible.

This confirmed my first hypothesis: *When human artists sample other human artists, they enter into an artistic and cultural dialogue with the original artists. The ethical implications of these dialogues are to be negotiated on a case-by-case basis.* But it also showed that the network of dialogues is much more vast than I had predicted.

Having understood the immensity of interconnectedness necessary in human→human sampling through my memoir, I turned to my second subquestion: *What are the cultural and aesthetic ethics of human→AI sampling?* I revealed the answer to this through both my conscious and unconscious decisions as a producer. My desperate attempt to rematerialize and remediate AI samples ended up being an attempt to reinsert this music without relationships *back* into relationship with the world—other artists, objects (hardware and physical media that indexed this music within aesthetic eras), moments, meanings, memoir. My second hypothesis to RQ 1, the one that addresses what changes when AI samples human music, was also confirmed. I predicted: *When AI samples human artists through a data set, this artistic and cultural dialogue is broken because AI music generators have no artistic or cultural identity.*

I had seen an example of Baudrillard's simulacra firsthand. The AI-generated music no longer referred to the *real*, and I was attempting to reintroduce it. If I were to pursue this endeavor

of using large data sets not populated by myself (as artist Taryn Southern and researchers Zhao and Galuszkaj had done), I knew that I would be creating artifacts that could feed future data sets. As I will discuss later, the amount of human-ness I would be introducing to those future data sets would be minimal and decreasingly tethered to the real.

RQ 2: Does the process of AI→human sampling (i.e., humans generating samples to use in their own music) restore some of the dialogic nature and humanity in the music and establish a new ethics?

Because atomizing training data into tokens scrambles or eradicates the dialogic present in AI-generated music, I had to find dialogue elsewhere. To be more precise, I had to inject dialogue into the process. This was, of course, always my intention. As I originally conceived of it, however, I imagined that it would simply be my musical creativity that accomplished this. In summer 2025, I did not imagine that noise and materiality would play such a central role. I believed that my own ability to sample, regardless of the medium, would suffice to rehumanize the music. This may have been true to a much lesser extent than what occurred——simply chopping samples up in

Ableton and letting them live entirely in the digital world may have been enough to introduce some humanity. But I was compelled (borderline obsessed) with breaking these sounds out of the box and exposing them to the corporeal. This, for me, was how they could come alive.

My original hypothesis:

> Even though the original genealogical chain from original recording artist to sample-based musician is broken, the reintroduction of spontaneous, serendipitous human creativity reinfuses AI-generated music with some aura of musical humanity.

I believe that I originally relied too heavily on the concept of "human creativity". My belief was that my own musical ingenuity alone would offset the rigidity and inhuman nature of AI-generated music. I envisioned agency and intra-action as belonging to only two entities: Suno and me.

This was my initial approach during the experiment stage of this research. I tried my best to conceive of Suno's outputs the same way I conceived of samples. The process of sampling anthropogenic music is a relationship between two agents. One agent is the sampling musician; the other agent is the entirety

of the recording and duplication personnel. I tried to map that relationship onto my relationship with AI-generated music.

I had no initial sense of the grotesque with the "Berman's" samples nor the process of creating music with it. In fact, my surprise at Suno's ability to fulfill my dreams of replicating "Naima" were promising——hopeful even. "Etude No. 1" was almost purely a technical challenge. I was more concerned with making it *work* artistically than understanding the vast, connected web of relationships that underpinned the music. The use of hardware samplers and magnetic tape were not initially attempts at putting "Etude No. 1" in dialogue with Colleen and an OfferUp sale. They were purely remediating techniques. I wanted to scuff up the sound in ways that only those media could, and I wanted to introduce some "spontaneous, serendipitous human creativity" by way of a live studio performance rather than a build in Ableton. Like complications on an expensive watch, these superfluous steps were aesthetic rather than precise and functional. In addition to the introduction of noise, adding these material elements was initially a *because I can* gesture.

I felt that "Etude No. 1" did restore some of the dialogic nature and humanity by way of being sampled. Breaking the Suno samples free from their hermetic state and altering, manipulating, and combining them with others put them in dialogue with each other, and I imagined this to describe a

massive web of invisible connections. The countless tokens (taken from human culture and reconstituted by a machine's mind) that comprised the "Berman's" samples were manipulated by the mind and sensibilities of a human (me), and that was a gesture of recuperation. I was able to reclaim the music and place it within an historical, human context. I am speaking specifically about the context of my generating the music in September, 2025.

It was during the "Inch Strand Yuta" sessions that I began to recognize the influence of other *personal historical* events on the music. The title alone (as arbitrary as I originally thought it to be) made it apparent to me that my goals in generating samples through Suno prompts were influenced by a life lived *outside* of the process of making music. I recognized that I was trying to convey to Suno a particular feeling: the feeling that "Rhubarb Orc. 19.53 Rev" by Aphex Twin had given me while driving through southwest Ireland. "Inch Strand Yuta" was an exercise in contextualizing AI-generated music through my own lived experience.

I had proven through "Etude No. 1" and through its contemporaneous failed attempts that I could work with AI-generated samples in an artistically sufficient way. (Note: the sufficiency of the work is something I alone determined based on my personal experience, and it is completely subjective.) "Inch Strand Yuta" built upon that confidence, and

I was reaching for something more personal——more relational. While it was never my goal, I felt a sense of wonder at the proven possibility of creating *believable* music (i.e., music that is essentially indistinguishable from purely anthropogenic-sample-based music) from AI-generated samples in "Etude No. 1". With "Inch Strand Yuta", this wonder was replaced by an attempt to enter into dialogue with my *non-musician* identity. Music, as I hear it and write it, typically points to something outside of itself. It is an emotional medium that has a necessary and strong relationship with the life I live and have lived. It was then essential that I invite my experiments into that relationship.

It was upon the conclusion of "Inch Strand Yuta", however, that I began to recognize a distinction between a dialogism which was reestablished and one that was irretrievable. While I had not fully reached the spiritual heights of "Rhubarb Orc. 19.53 Rev" with the final construction and performance of "Inch Strand Yuta", I was able to recognize a distinct dialogue between my own life, Suno's output, and my manipulations and arrangements. This was encouraging. What I found that could not be recuperated, however, was a dialogue between me and the artists whom I was sampling. I realized that I had never once felt that I was working with other human musicians. I could pick out parts of Suno songs and recognize where Suno may have gotten

its tokens; I even halfway believed that I could occasionally hear precisely which songs it used in its training data. But I knew that the data had been scrambled and that what I was primarily engaging with was not the training data, but Suno's sensibilities in reassembling it to construct pieces of music. In other words, the underlying human music which fed the data set was unrecognizable; I felt that I was working with Suno's *process* rather than the tokenized human culture that served as fuel for that process.

Up to this point, I had only worked with Suno-generated samples remediated through devices designed to reproduce and manipulate recorded audio. I began to sense that there was no retrieving the connection between human musicians who had been reduced to fodder for a data set and myself. It was a desperate attempt on my part, then, to add as much humanity to the next piece by bringing in my own live instrumentation and other musicians with "Spoiler".

With the exception of my electric guitar recording, "Spoiler" lived entirely within Ableton. I arranged it in Ableton the way I would typically arrange a piece of music. I had also planned to construct it as a performance, but the existential crisis of the experiments and my unease at bringing other human musicians into the process stopped the experiment. Because I hadn't processed "Spoiler" through different

media——without tape hiss and compression and distortion and reduced sample rates——I became aware of an irreconcilable issue:

> *Stem splitters always create a kind of unsettling artifacting. Little shadows and shimmers of all of the excluded tracks float into the mix briefly. You hear frequency crosstalk and the hint of another track's reverb. But splitting AI music is different. It's this——the same camera obscura images of other noise——but it reveals something. I can't exactly describe it. But it's ghostly. It's like without a strong enough signal, it's empty——truly empty. There was no room and no tape. There is only the idea of music——the idea of noise. With no medium to live in, no space and no moment, the sound is here and then gone.*
>
> November 11th, 2025

At first, I understood this issue to be unique to the limitations of stem splitting. But I realized that stem splitting revealed an underlying deficiency in AI-generated music. Without *memoir*——without occasion, without a place, without a medium, without material *noise*——Suno's offerings, stem split or not, were irretrievably *empty*.

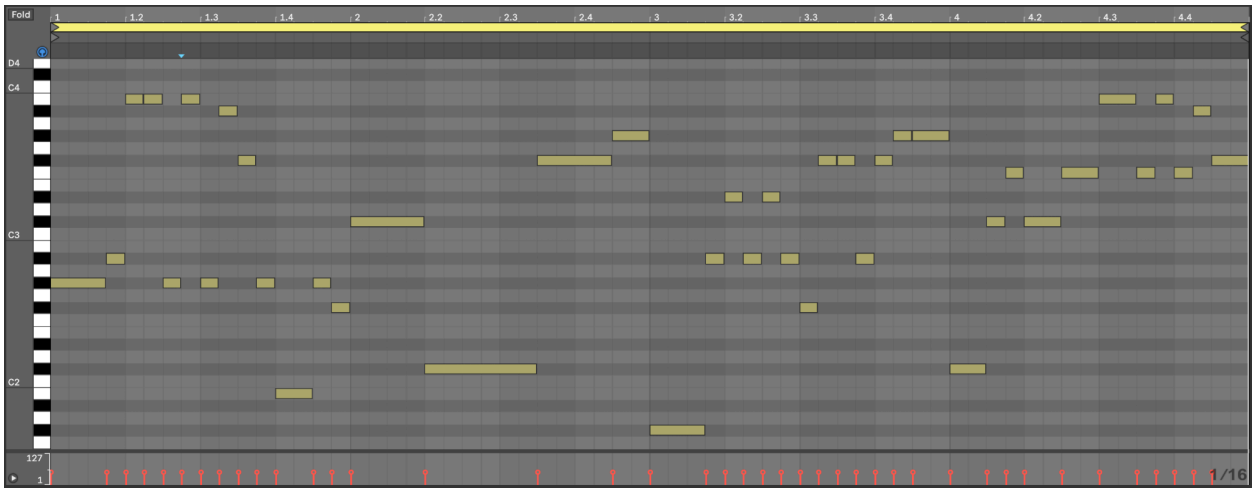
As a human listener and as a human musician, I became aware at this point that I was subconsciously listening for a hint of imperfection in AI-generated music. By keeping the "Spoiler" samples in a digital environment, I could hear that, in an almost imperceptible way, they lacked the essence of human music: imperfection, whether it's barely audible (e.g., top 40 pop music, modern country music) or it's a defining feature (e.g., 1990s freak folk, outsider music), suddenly seemed *necessary*——absolutely necessary——for a piece of music to be human.

But this couldn't be true. There are pieces of computer music that are *perfectly* timed and tuned and composed and are still made by humans. They are still pieces of human music. They are no more or less engaged in a dialogic with other human musicians than any other genre. Genres like 2000s trap music or chiptune often feature compositions that use virtual instruments with notes that are exclusively "drawn" in a piano roll [Figure 16]. Notes written this way are in the Musical Instrument Digital Interface (MIDI) language. Their timing is perfectly synced to the DAW's MIDI clock (a universal tempo set and kept by the DAW), the notes are defined by the DAW's tuning standard (typically A4=440hz), and the volume (called "velocity") is encoded within the notes as well. These MIDI notes, written on a

piano roll, can be copied to any virtual instrument on any DAW and essentially perfectly reproduce the same composition.

Figure 16

MIDI Composition of "Kaini Industries" by Boards of Canada



Note. The timing of notes written in a piano roll is read from left to right. Pitch is read from top (higher pitch) to bottom (lower pitch). Volume (velocity) controls differ between DAWs but encode the same information. Here, in Ableton, the controls are on the bottom of the piano roll, represented by vertical bars that can be adjusted up or down to affect velocity.

It was at this crossroads——where I could hear and feel an emptiness and a soullessness and an inhuman presence in any music generated by AI——that I nearly abandoned ship. If I

couldn’t pin this emptiness down, what had I done? It felt as though I had spent a whole lot of time to say, “Yep. It’s not human, and it’s not dialogic, but I don’t know why.”

It may have been this sudden confusion and seeming defeat that inspired “Spirit Box”. This exercise was a response to the question appearing to fall apart before my eyes. I had been trying to fit AI-generated music into my concept of human music. ‘Could I dress it up and pass it for human?’ I had imagined a recording going out to musician friends with a big reveal that some sizable percentage of the record was AI-generated sounds. I was trying to drag it into the world——trying to squeeze it for any drop of humanity it had left. With “Spirit Box”, I attempted to push *myself* into dialogue with AI rather than pull it towards me. I made this track on Suno’s terms. Ultimately, my only role in “Spirit Box” was to spontaneously loop the audio and hear whatever I could make out. Suno did the rest.

This was the final gesture of intra-action between one human and one AI model (a premise I understand now to be impossible). It started with the “Berman’s” samples and “Etude No. 1” and my preconceived understanding of how human music was made. Then “Inch Strand Yuta” introduced my preconceived understanding of how human music feels. “Spoiler” showed my preconceived understanding of what human music says. “Spirit Box” was an inversion. How does AI make music? How does that

music feel? What does it say? I allowed myself to be passive and gave Suno permission to use its full "Weirdness".

By the time I wrapped up "Spirit Box", I feared I wasn't much closer to understanding what the dialogic nature of this relationship was and if AI-generated music had much, if any, relationships with the music that feeds its data set. I was certainly confused about where, if anywhere, the humanity was in all of this. It wasn't until I started compiling my notes and truly writing this document that it became clear to me.

My hypothesis…

> Even though the original genealogical chain from original recording artist to sample-based musician is broken, the reintroduction of spontaneous, serendipitous human creativity reinfuses AI-generated music with some aura of musical humanity.

…is off by one word.

It isn't human *creativity* that brings that aura of musical humanity back. It is human *story*. It is the life narrative of the artist, the listener, and everyone they know that is what

sets human music apart from anything that an AI model can produce on its own.

> Even though the original genealogical chain from original recording artist to sample-based musician is broken, the reintroduction of spontaneous, serendipitous human **story** reinfuses AI-generated music with some aura of musical humanity.

These experiments were exercises in remediation, but the AI-generated samples weren't just remediated through recording media and physical devices. They were remediated through a life——through people and places and objects and moments and histories. The fragments that comprise the "Berman's" or "Inch Strand" samples are reanimated through a massive narrative——one that stretches far before me and beyond me and continues after me.

I didn't come to understand this until I tried to figure out where to start writing. I considered beginning at the beginning: the "Berman's" samples. But that needed context. The "Berman's" samples were a consolation prize for failing to make Giallo samples, but even that 'failure' was exciting because I had wanted to recreate "Naima" earlier. I felt it necessary to explain to the reader that I initially wanted to recreate

"Naima" because it reminded me of "Mad Blunted Jazz". Why else would I be so enamored with the prospect? At every turn I kept asking myself questions. "Why these tapes?" "Why these samplers?" "Why this musical inspiration?" "Why this?" "Why now?"

I couldn't tell the story of the experiments without telling pieces of my life's story because, as I now understand it, *the story behind the music is the humanity*.

It was shortsighted of me to think that I could ask RQ 2 separately from RQ 3. RQ 2 asks whether sampling AI-generated music *at all* restores the dialogic in music. I imagined the action called "sampling" to be an inert process——a standard process that exists in a vacuum devoid of any external, personal influence. I believed that I could consider the process of sampling *a priori*. I have found that this is, of course, impossible.

To formalize an answer, my hypothesis for RQ 2 was proven (with only one word replaced). The process of AI→human sampling does restore some of the dialogic nature and humanity in the music and establish a new ethics. The salient discovery here, however, is that it accomplishes this restoration precisely because sampling *necessarily* introduces creative and cultural elements. It is not an artform that has a neutral state. The "process of sampling" is a phrase that cannot be unmoored from

the lived and material influences upon it. The answer to RQ 2 is "yes" because "sampling" brings the other things along with it.

And this answers RQ 3 in a roundabout way as well.

RQ 3: What creative and cultural elements can human artists introduce that makes AI→human sampling feel more dialogic, cultural, and human?

In order to sample music, one must live a life and interact with objects. In order to interact with AI-generated music by sampling it, one must necessarily involve that life and those objects, and those are the "creative and cultural elements" that human artists introduce.

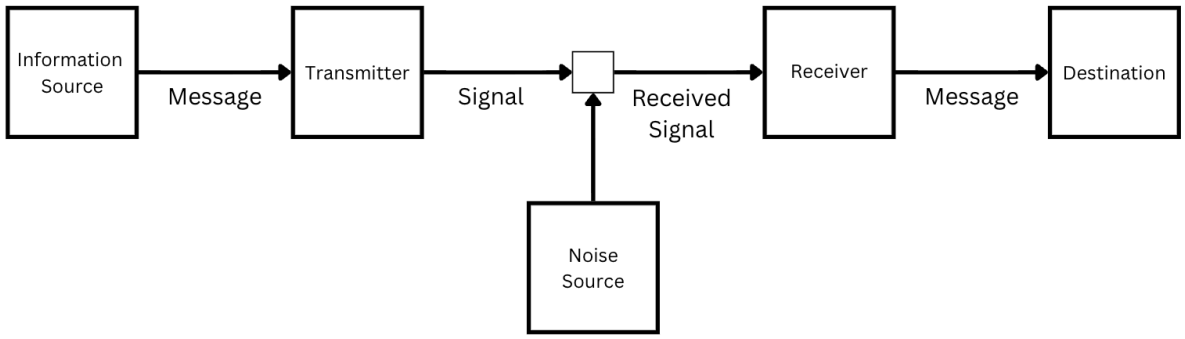
Noise

Having spent my artistic life interested in how music-making objects introduce noise and how that noise signals a piece of music or an artist's position within a cultural tradition, I felt compelled early on within my experiments to intentionally introduce noise. If I intended to bring AI-generated samples into the physical world and into dialogue with materiality, what better way than to deface them a bit with physical, material noise? I quickly recognized that I was attempting to subvert the Shannon-Weaver Model (Shannon &

Weaver, 1949). This aligns with glitch artist and theorist Rosa Menkman's concept of noise as an essential and positive interpretive medium: "Flow cannot be understood without interruption" (2011) [Figure 17] [Figure 18].

Figure 17

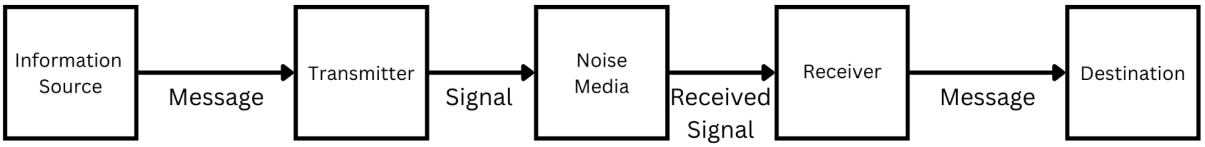
Shannon-Weaver Model of Communication



Note. This is the original model with the *noise source* acting upon the signal/message unintentionally and to the detriment of the information source (encoder) and the destination (decoder).

Figure 18

Modified Shannon-Weaver Model

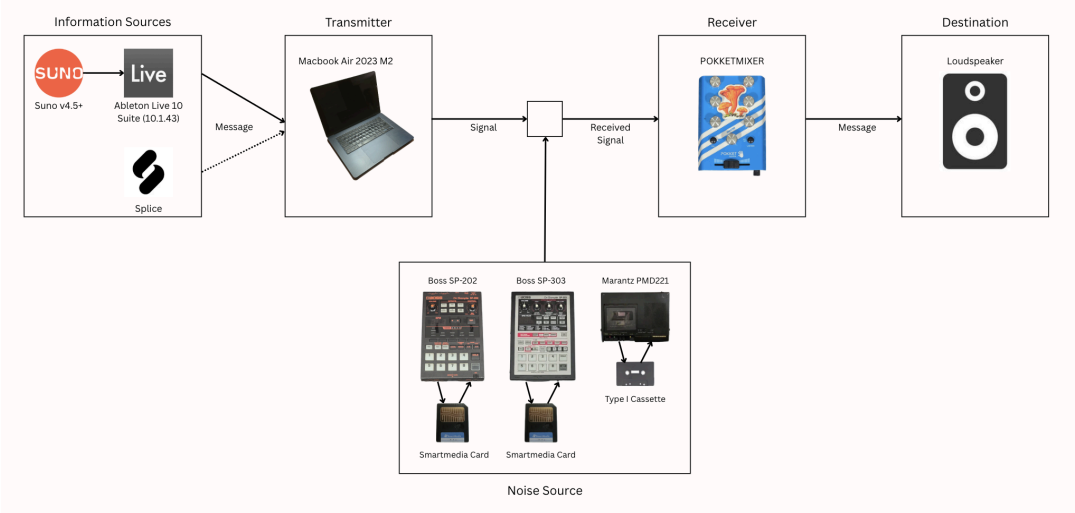


Note. I adapted the Shannon-Weaver Model, shown here, to describe the *noise source* not as an incidental one that acts upon the signal/message, but as an intentional *noise medium*.

While describing the experimental process in the above writing, I began to mentally construct signal paths for each piece with the Shannon-Weaver Model in mind. I saw in my mind simple schematics tying the *content inputs* (information source and transmitter) to the *signal* (signal, receiver, and destination). With each new development in the story, the signal paths in my mind expanded. As I understood more and more of the interconnectedness of story and artifact, I added more and more things to the signal paths. Early on, I envisioned the signal path schematic of "Etude No. 1" as an easily readable, reasonable flow that resembled the standard Shannon-Weaver Model [Figure 19]. We will take that particular experiment as our example.

Figure 19

"Etude No. 1" in Standard Shannon-Weaver Model

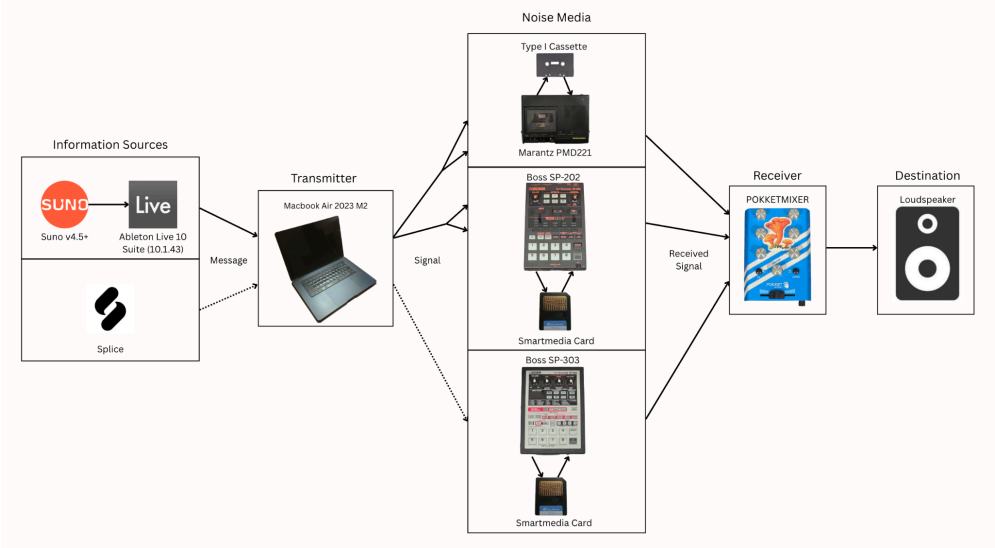


Note. The noise source is described here as a single agent acting upon the signal path as a disruption rather than a medium.

In my work to describe the effects each device has on the resulting signal, I began to recognize that the model is more complicated. Most importantly, I noticed that conceptualizing the noise source as a medium rather than an unintended disruption more accurately described the signal path. Because I intentionally introduced media that produced noise (e.g., samplers and cassettes), I was creating a noise medium [Figure 20].

Figure 20

"Etude No. 1" in Modified Shannon-Weaver Model



Note. Note the divergence in the signal that occurs within the Macbook, indicated by solid and dashed lines. The samples that were remediated through the SP-202 and Marantz (in order to take advantage of these devices' relicing capabilities) started in Suno, moved through Ableton, and were sent to the devices. The samples that started in Splice (a sample library service) are anthropogenic, and while they also went through the Macbook because they are accessed through software, they did not go through Ableton. They were sent directly to the SP-303, which is capable of higher fidelity sampling than the SP-202 and the Marantz. Also note that the signal path splits as it moves from the Macbook to the SP-202 and the Macbook to the Marantz. I used a cable that uses a 3.5mm stereo jack on one end and two RCA

jacks on the other end. This allowed me to record stereo sound to the sampler and tape recorder.)

Even a description of the conversion of *noise sources* to *noise media* and their careful addition as in-line waypoints along the signal path felt incomplete. It is *possible* that *any* conceivable variation of sound quality (e.g., emotive, technically complex, microtonal, experimental, noisy, etc.) could be emulated digitally. We cannot, therefore, rest solely upon the sonic qualities of material noise media in our signal path to assert the presence of humanity nor materiality.

In fact, we cannot rest solely upon *any* sonic qualities contained within the audio output of *any* music to signal the presence of humanity nor materiality. If it is possible that generative AI could sonically and believably emulate anything that humans and the physical world could produce, then sonic qualities are unreliable as concrete markers of anthropogenesis or materiality. This leaves us with a final (yet infinite and recursive) addition to the signal path: the memoir.

Drawing upon Geoffrey Winthrop-Young's concept of Hardware/Software/Wetware (2010), I propose two amendments. The first is the distinction between wetware and meatware. These terms are sometimes used interchangeably, but I would like to divide them. I use wetware here to describe things that happen

in, and because of, the brain. Meatware, then, describes things that happen in, and because of, the body.

A Frantic Phone Call

On April 29th, 2026, I paced around my house with a list of concerns about this dissertation. I was on the phone with one of my dissertation committee members: Julie Newton. After she assured me that everything would be fine and that this dissertation was closer to what I wanted it to be than I thought, I asked her one final question. I explained the separation of wetware and meatware, and I asked what she thought about an addition. I wasn't especially happy with the name, but I thought she might have a better suggestion.

"Memoirware," I said.

Julie was in California at the time, and the call had already dropped once. The signal wasn't very strong. And in that cellular noise——a noise that was an expression of her being in California, me being in Portland, both of us on cellphones——she misheard me. Instead of "memoirware", she heard, "memware". And that was it. It was noise, in my brain and her brain and the airwaves and the tiny phone microphones and speakers, that gave me the name for a fifth ware: memware.

As if to confirm that I wasn't overreacting to such a poetically concise contribution to this dissertation, the next

day, I was on a video call with my committee chair, Donna Davis, and she misheard me as well. I was recalling the phone conversation I had had with Julie the day prior, and when I got to the "memoirware" part of the story, Donna misheard it as well.

"Memware?" she asked. I was a bit suspicious that Julie had told her before the video call. But no, it was the noise of my brain and her brain and the wi-fi and the tiny laptop microphones and speakers.

Five Media

Memware is a medium defined by its noisy influence on signals by way of life stories. AI→human sampling restores some of the dialogic nature of music (RQ 2) because sampling necessarily involves introducing elements of the artist's life story. These elements, both material and evanescent, introduce noise. Here are five sources of noise adapted from Winthrop-Young's concept of wares, all of which exist within the world of the musician:

1. Hardware
    a. A material source of noise
    b. Examples:
        i. Magnetic tape (hiss, frequency response, distortion/compression)

ii. Preamps (distortion/compression, frequency response)

iii. Audio cables (noise floor, connectivity issues, attenuation)

iv. Microchips

2. Software

a. A material source of noise

b. Examples:

i. Digital sampling algorithms (reduced sample rates, reduced bit depths, compression)

ii. Stem splitters (artifacting, crosstalk)

3. Wetware

a. A material source of noise

b. Noise introduced by phenomenological responses to audio stimuli

c. Examples:

i. Auditory pareidolia

ii. Recombinance

4. Meatware

a. A material source of noise

b. Examples:

i. Imprecise performance of music through the body

5. Memware

a. An evanescent source of noise

i. Examples:

1. Memories (of emotions and events)
2. Relationships (with people, objects, places, and other art)

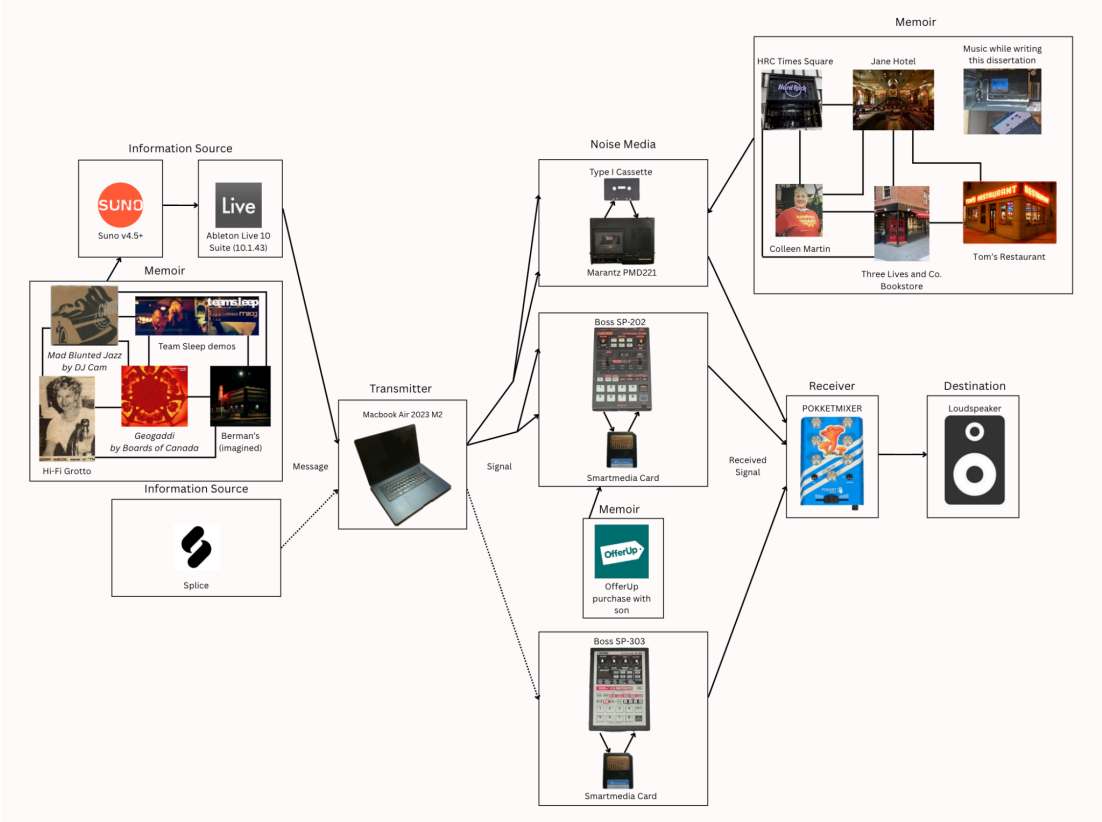
As the figure below shows, it is absurd to try to create a complete signal path that includes the historical, human stories through which music is mediated. We can try to identify (as I have done both above and below) the specific moments which have contributed to our artistic decisions, the physical devices/media/instruments we use, and the emotions we feel before composing a piece of music and afterwards, while listening to it. In this endeavor, we face a two-fold challenge. First, there are simply too many factors in a life's story that affect these creative conditions to include in a signal path. I have chosen a few to describe the signal path of "Etude No. 1", but there are many more——too many to count. The second challenge is that it is impossible to list all of the *other* influences that affected the memoir influences. Why did I go to the Jane Hotel? What was in the Three Lives & Co. bookstore building before it was a bookstore? Who gave me the burned *Geogaddi* CD? The influences go on forever, even doubling back on themselves. Zooming in on any influence would reveal a panoply of influences

upon that influence *ad infinitum*. It becomes a fractal of infinitely connected influences.

To describe any influences here, then, is simply demonstrative. I include the following figure to show how complicated the signal path becomes—how *relational* it becomes [Figure 21].

Figure 21

"Etude No. 1" in Modified Shannon-Weaver Model With Memware

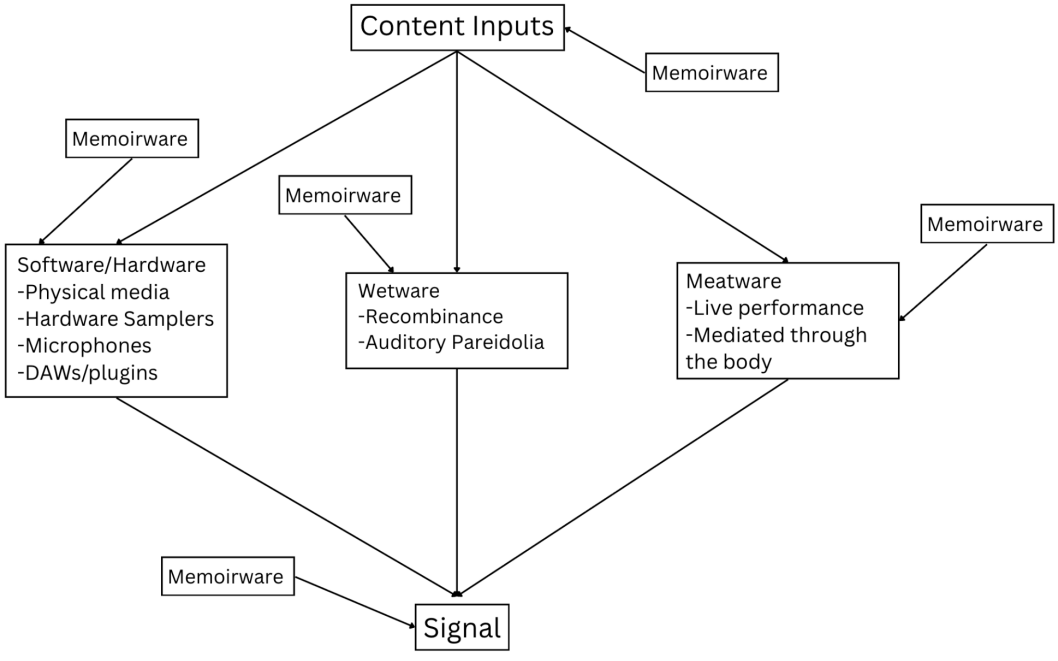


There are reasons within reasons within reasons for each entry here. It would be Borgesian to suggest that they could all be named and placed properly along the signal path. But each bit

of memware introduces its own noise. It does this in a number of possible ways. Some pieces of memoir contribute material devices and media which do introduce audible noise (e.g., the Marantz tape recorders, blank cassettes, Califone, etc.). Some introduce influences (e.g., musical, personal, emotional, etc.), and these influences are situated within any number of conditions (e.g., age, positionality, socioeconomic status, etc.). Influences introduce noise because they occasion unstable and unpredictable artistic choices (Figure 22).

Figure 22

Model of Memware's Effects on Remediation



Note. This diagram is only able to describe the most basic influence of memware. As with the original Shannon-Weaver Model of Communication, memware is here depicted as an external force which acts upon a noise medium. Of course, it can also be an in-line influence. While some part of a life's story may provide the material means of remediation or the artistic inclination to incorporate a noise medium, the conscious decision to use these media in order to incorporate a specific reference to one's life is also informed and impacted by memoir.

The story is the ultimate human medium. There could, in fact, be no way to place any singular piece of memware accurately along the signal path because the entirety of the signal path is influenced by the entirety of a person's life story. Whether we use AI as a contributing factor to the music we make or not, memoir runs through all of our choices. Our stories are what make it human and what make it material.

The unease I felt while conducting these experiments finds its origins in many places——the ethical, ecological, and cultural issues of generative AI, for example——but what drove my discomfort and eventual horror was that I had attempted to bring something with no story (or at least no retrievable story) into my story.

I was initially disappointed that I could not present this research as a creative dissertation. Early on in my experiments,

I felt that it would be necessary to submit musical artifacts as part of the findings. I will admit that merely describing them above was, at times, challenging. Music, like any non-literary art, is irreducible and can only be accurately described by itself. I have always felt that any attempt at musical ekphrasis, be it in a scholarly article, a music critic's review of an album, or a friend's description of their favorite song, inevitably ends in some degree of confusion. I suppose my attempt introduced yet another kind of noise. We can call it "wordware" if you'd like. I'd rather leave well enough alone.

Ultimately, a creative dissertation would have been inappropriate for this research. What would a collection of musical pieces have added to the artifact? The question is unanswerable——a Mary's Room thought experiment. What knowledge is gained through direct experience? The reader-turned-listener would be compelled to listen closely for the injections of noise and for my acumen or failure as a music producer. "This works as a piece of music," they might say, "I would not be able to tell this came from an AI model." In the end, however, the musical and artistic soundness of the artifacts wasn't what I was investigating. I was investigating whether it is possible to reintroduce dialogue and how one might do that. If the answer is *noise* (and I believe it is), then noise should be the artifact.

I look at Figure 19; I remember the connections between EVPs and the hole in the fence; I hear the garbled chaos of the floppy disk medium in the Califone; I am digging through my mother's duffle bag in my mind——it is a jumbled pile of CDs; I hear tape hiss, LO-FI 2, and a reverb pedal; I hear the Team Sleep demos and *Geogaddi*; there are a million voices and moments and objects and memories and feelings and decisions and sounds. They're all here all the time. They are in every bit of music I made for this study. And they are all a tangled mess.

And that's what I have found to be the best artifact to put forward here: the mess. To modify Marshall McLuhan's famous phrase, I posit that *the medium is the mess*. If I wish to convey to someone else that a human being made *this* piece of art, I can only convey that idea through the messiness of its making.

Chapter XII

Discussion

There is no exorcism in the endeavor to collaborate with the disembodied echoes of flesh and blood artists. On the contrary, my "noise" amounts to a sheet placed over the spectre. Thrown first to conceal the spectre's presence, the sheet only makes the ghost more apparent. Its outline becomes clear. The absence of human trace is no longer ignorable——this absence takes form. The void takes center stage.

I could not have known that I would expose the ghost, nor that it even was a ghost, had I not first attempted to conspire with it.

December 28th, 2025

In late December, 2025, I sat on my couch and described "Spirit Box" to a friend. At this point, I did not want to drag out the Califone and put on a show. I hardly wanted to listen to the Suno samples at all. I played them for her and told her about stem splitter artifacts, EVPs, and Frank Sumption's first spirit box. I told her about auditory pareidolia.

"Creepy," she said, clearly excited, if not a bit overwhelmed by it all.

"It *is* creepy," I said, "the whole thing is just so eerie to me now." I started to describe training data tokens and that 'bottomless bin filled with human audio parts.' I thought of Mary Shelley's Victor Frankenstein and the terror he felt when his monster came to life (1818). I thought of Edgar Allen Poe's *Tell-Tale Heart* (1843), Philip K. Dick's replicants (*Do Androids Dream of Electric Sheep?* (1968)), the graveyard that the house from *Poltergeist* (1982) was built upon and the ghosts that terrorized the family and reclaimed the house. Zombie films. Vengeful ghosts. Uncanny creations——golems, George Langelaan's human-fly chimera (a result of unchecked technological innovation) in "The Fly" (1957), and, of course, Frankenstein's Monster.

IS THIS A HORROR STORY?

Written in dry erase marker on my living room window.

I was enamored with this question as if it were a salvation. Horror stories end. The protagonist usually gets out alive. I instantly became more interested in this discovery than in any of my remediation efforts. But those efforts had revealed the true nature of AI/human collaboration. Our attempts to integrate this unholy technology into our practices are not

progress; they are our escape plan. They are our way to convince ourselves that the monster is not a monster.

My efforts to rehumanize offered a

conciliatory and unsanguine escape.

An incomplete escape attended by no

flake of virtue.

No hint of redemption.

December 28th, 2025

Our anxieties——the deep horror we feel when confronting AI——look to the future and to the past. We could easily imagine this moment as a scene in the first act of a technological horror. It is natural and reasonable to feel as though the danger calls from the future. Or perhaps that we now inhabit some hubristic past's future, the reapers of what early digital technology pioneers sowed. Indeed, the landscape we find ourselves in and the yet-unlived landscape to which we go uneasy and willing are filled with the overdue wages of our sin.

But our anxieties do not only look forward. The antagonists are not only Ridley Scott's replicants nor James Cameron's terminators. There is also an ancestral horror——the

collective haunting of all those artists (all those minds, lives, histories, cultures) whose humanity we have recycled. It is the realization of the ingredient in soylent green. It is a glimpse at the countless tortured souls on the edge of a black hole in Event Horizon *(1997).*

Our fear here is well described by both The Tell-Tale Heart *and* The Terminator*. We have dismembered our past to build unimaginable creatures for our future. We carry the lineage of one and the obsolescence of the other.*

We share in Victor Frankenstein's horror, so we look away.

December 30th, 2025

I feel satisfied that I have completed this work. At least, I feel satisfied that I have completed it for now. I went looking for a way to reintroduce humanity into AI-generated art. After my musical experiments, and especially after my reflections on memoir and the importance of story to musical decision making, the presence and inclination to use physical media, and mental and emotional experiences of and reflections on the resulting music, I believe that I have found where humanity can be found in work that collaborates with AI.

All of this forceful addition of story and physical media and body and mind is a kind of dithering——the practice of adding noise to hide digital artifacting. This technique is used in both audio and visual media. With enough noise, blur, grain, reverb, tape hiss, or downsampling, we can hide the fact that something that was historically analog has been converted to ones and zeros. It is a method of obfuscation. The lengths to which I went to blend the AI world with the physical (and thereby the human) were all obfuscation——throwing the sheet over the spectre.

The answer to, 'Where is the humanity in this?', then, is 'It is the obfuscation.' There is no discernable, undeniable human signal in the final artistic artifact other than the obfuscation. If, then, the obfuscation is run through and in fact defined by memoir, human *story* is the only human trace to be found. The medium is the mess.

It is no coincidence, and I believe it is not too cute of a notion to present here, that the person who conducts a séance is called a medium. Spiritualists believe that mediums are the mediating force between the spirit world and the physical one. Materialists, however, believe that there is no spirit world. There is no trace of humanity calling from beyond. In this way, all we hear when a medium speaks is the medium. Their own stories, experiences, and desires——including the desires of

their audience——are the signal. My experiments and their eventual ties to horror and the supernatural amount to the same thing. The obliterated human culture, from which AI draws, offers no *discernable* human signal, so the only human signal you might hear if you listened to "Inch Strand Yuta" or "Spoiler" would come from me and the physical tools I use. I am a product of my story, and the objects I use to create music are a part of that story. Because of this, what you hear when you listen to these pieces are, above all else, pieces of my own life's story.

Because my friends know I have done this research, I am often asked, "What can humans do that AI can't do?" For a long time, I gave the same answer, "Probably nothing." I can think of few if any products that AI couldn't produce or tasks it couldn't do. As AI becomes more embodied, and as it consumes more human knowledge and culture, it becomes a fool's errand to try to find the gaps in which we fit. But I have found that a better answer to the question, "What can humans do that AI can't do?" is simple: have a story to tell.

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