Sampling the Latent Space: Exploring the Creative Potential of Generative AI Through the Lens of Sample-Based Music Making

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Abstract

Sample-based composition is a century-old practice in which artists repurpose existing sounds to create new music. As generative AI (GenAI) systems increasingly reuse existing material, they are often compared to sampling and remix practices. In this paper, we draw on the relatively mature tradition of sampling to address a key concern of GenAI: how can a tool which is dependent on the recycling of existing art support meaningful creativity? We present an ethnography and thematic analysis of a sample-based music community, connecting these insights to contemporary challenges in GenAI design. We discuss how designers might support artists in engaging with environmental, fictional, communal, and agential dimensions of GenAI models and data, building on literature about sample-based music to speak not only to generative music but to GenAI systems more broadly.

1 Introduction

As generative artificial intelligence (GenAI) for music – training a model on existing sound data, manipulating it in some way, and creating novel output – has become more popular, it has attracted comparison to remix and sample-based practices where composers manipulate recorded sound to create new audio output. They appeal to a similar tension, the reuse of others' work on the one hand, and the creative agency of the artist on the other. In other words, they both raise questions of whether the process of making art from existing material can be considered meaningful. But, while the analogy of 'remix' has often been appealed to for the critique and design of GenAI systems, they have rarely been formulated on the basis of engaging remix-based and sample-based communities themselves. The research question (RQ) at the core of this paper is therefore: *How can understanding sampling help us think about GenAI systems*?

We undertook interviews and ethnography of two sample-based communities and reflect on how understanding creative practices in these communities might offer an alternative lens through which to view some of the ethical challenges of using GenAI. Through thematic analysis we identify themes of sample-based practice (environment; reality; community; agency), before exploring how these themes relate to aspects of GenAI more broadly, such as data provenance, explainability and latent representations. In contributing this analysis and discussion, we attempt to support the creative and engineering communities in thinking about what we are really trying to do with our GenAI models, as well as who or what we are ascribing agency to in these systems.

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2 Related work

2.1 Sample-based music

Sample-based composition – the process of composing new sounds from existing sounds – has evolved alongside technological and social changes since the early-20th century. Widely accepted is the genesis of sample-based composition with tape-based manipulation, for example in the work of Respighi (1925); Schaeffer (2012); and el Dahb (Seachrist, 2003). This evolved in the 1970s and 1980's to vinyl and digital samplers like the Akai MPC and Roland SP303 (Exarchos, 2019), and eventually realtime micro-sound sampling operations such as granular synthesis (Roads, 1988) and concatenative synthesis (Schwarz, 2007). Since the turn of the century, online repositories (Fonseca et al., 2017), live-coding environments (Collins et al., 2003; Wilson et al., 2020; Xambó Sedó, 2023), and analytical tools (Tremblay et al., 2022) introduced new paradigms for interacting with the minutiae of enormous corpora via high-level abstractions.

Landy and Richards (2024), among others, explore how sample-based music-making engages meaning not just of *analytical aspects* (such as spectral centroid, pitch or loudness, for example), but also *social aspects* of audio, such as 'the radical Black sonic imaginary' (Watkins, 2005; Weheliye, 2005); critique of the music industry (Jones, 1995); and recontextualised natural environments (Chapman, 2007; Barton and Goodman, 2024; Landy, 2019), which resist abstraction.

2.2 Generative AI in music

As computational power and data availability have increased in the past 5 years, generative music creation has shifted towards deep learning techniques, which produce more complex and realistic outputs based on audio training data. In their 2022 systematic review of GenAI music generation, Civit et al. (2022) found that most GenAI music systems now use existing data, with 70% of generative models being deep learning-based. They also noted a rapidly growing interest in audio generative models that are either controlled by text input – for example, transformer-based architectures (Dhariwal et al., 2020; Borsos et al., 2023) and diffusion models (Huang et al., 2023a) – or that give users control through intermediate representations, such as Generative Adversarial Networks (GANs) (Donahue et al., 2019; Dong et al., 2018) and auto-encoders (Tan and Herremans, 2020; Caillon and Esling, 2021).

Large, labelled datasets play a central role in training generative audio models (Chen et al., 2024). Timbre-oriented datasets like NSynth (Engel et al., 2017), which includes over 300,000 musical notes from a wide variety of instruments, have been foundational for musical audio synthesis. Generic datasets, such as AudioSet (Gemmeke et al., 2017), with more than two million manually annotated clips, supports audio generation and modelling across diverse domains. Multi-modal datasets such as MusicCaps (Agostinelli et al., 2023), which pair thousands of music clips with descriptive text, are now crucial for enabling multi-modal GenAI.

The increase of GenAI music audio systems trained on large datasets means our corpora are more enormous, whilst at the same time we interact with smaller minutiae, and the fidelity of our outputs are greatly increased. This in turn supports a range of music-making tasks with GenAI, such as in-painting (Garcia et al., 2023), style & timbre transfer (Bonnici et al., 2022; Cifka et al., 2021; Hung et al., 2019), embodied performance systems (Murray-Browne and Tigas, 2021), and intelligent music production (Deruty et al., 2022).

However, GenAI's reliance on data attracts concern about the resultant *artwork itself* – ownership and authorship (Goetze, 2024); bias in data & features (Huang et al., 2023b) and non-diverse research communities (Civit et al., 2022) – as well as the music-making *process*, and whether GenAI impacts how meaningful that is (Kraaijeveld, 2024).

We are particularly interested in this *process* dimension. While psychology and human-computer interaction (HCI) literature highlights the importance of meaning-centred interaction design, (Diefenbach et al., 2014; Mekler and Hornbæk, 2019; Rosso et al., 2010), much existing HCI work on GenAI music systems focuses either on control (Bryan-Kinns et al., 2023) or human-adjacent interaction (Vear et al., 2023). Technoscientific approaches examine how the meaning of musical systems – including GenAI – is co-constructed within communities of practice through semiotic modes of communication (e.g., diagrams (Morrison, 2024), metaphorical language (Saitis et al., 2024; Anonymous, 2025)). Other, post-human and material accounts suggest new possibilities for what can make

human-AI interaction uniquely meaningful, considering how artwork arises from complex networks of human and non-human actors (Huang and Sturm, 2021; Armitage et al., 2023); or even that GenAI systems can themselves express creativity (Colton and Wiggins, 2012).

2.3 The metaphor of sampling in GenAI

The metaphor of "sampling" and "remix" in the design and artistic application of GenAI has become ubiquitous (Kato, 2024; Giuliani et al., 2023; Collins et al., 2020). We posit that the use of data in GenAI is similar to the use of samples in sample-based music. However, this is not a universally accepted position. The field of remix studies wrestles with the parallels and differences between GenAI and sampling/remix. On the one hand, some argue that 'Everything is a Remix' (Ferguson, 2014), and on the other hand, Gunkel (2025) argues that while 'remix has prepared us for the opportunities and challenges of [GenAI]' it is important that we do not treat them as equivalent. GenAI does 'not simply repeat or reproduce the artistic, moral, and legal challenges of remix' but rather 'recontextualises remix' itself. They argue that GenAI should be analysed with respect to new social and economic dynamics, new material constraints, and a new unit of analysis.

3 Method

The study reported in this paper employs a two-part method of qualitative data collection and analysis. First we engaged with a community of musicians who work with samples through a mixed-methods approach combining ethnographic observation and semi-structured interviews. These data are then analysed using thematic analysis and the emergent themes and codes used to drive reflective and critical discussion of what sample-based music-making practices could tell us about the use of GenAI in music-making.

We conducted data collection across two events within London's sample-based music community, CreateDefineRelease (CDR)¹, and ClubWIP², which are shown in Figure 1.



(a) A CreateDefineRelease (CDR) event



(b) A Club WIP event

Figure 1: Our two observation sites: (a) CreateDefineRelease (CDR) (b) Club WIP.

CreateDefineRelease (CDR) A community interest company running since 2002 that nurtures independent music makers, particularly in Black electronic music. CDR sessions feature guest producers discussing their process in a club environment, bookended by "openCDR" segments where attendees' tracks are played and discussed. The first author has been involved as both attendee and organizer for five years.

ClubWIP A creative challenge event where music makers compose pieces under specific limitations, often involving sample sources or transformation techniques. Tracks must be under one minute,

¹https://www.createdefinerelease.com/

²https://www.clubwip.co/

and producers discuss their work with each other. These events have been operating since 2023 in partnership with local sound-systems.

3.1 Observations

The first author actively participated in these groups, attending 4 ClubWIPs (25-30 attendees per event) and 6 CDRs (60-80 attendees per event) over 12 months. Observations were recorded using a structured observation guide (Roller and Lavrakas, 2015) containing six key areas:

- 1. People (attendees)
- 2. Relations (connections between attendees)
- 3. Content (musical material)
- 4. Feeling (emotions expressed by participants or felt by observer)
- 5. Semiotic mode (techniques used to communicate content (Danielsson and Selander, 2021) e.g. gestural)
- 6. Other (anything else of note)

3.2 Semi-structured interviews

While initial observational data was helpful for getting a sense of activities in the communities, in-depth, semi-structured interviews were used to draw out themes. The first author interviewed 7 musicians (mean age 31.3, SD=10.3; mean experience 17.6 years, SD=7.41) who primarily use samples in their compositions. Participants had a range of musical practices, and most had engaged with AI either for interaction (e.g. gesture-to-sound mapping) or audio (e.g. neural audio synthesis) (Table 1).

Participant		Use of AI	
ID	Practice	AI for Interaction	AI for Audio
P1	Ambient Musician, Pianist & Producer	-	-
P2	Performer, Instrument-Maker & Vocalist	\checkmark	-
P3	Live-coding Performer	-	\checkmark
P4	Interactive and Generative Music Composer	\checkmark	\checkmark
P5	Sound Designer	-	\checkmark
P6	Composer for Television and Film	-	\checkmark
P7	Percussionist and Hip-Hop Producer	-	-

Table 1: Participants' musical practices and use of AI.

Participants were recruited through CDR and ClubWIP, and selected based on their experience with sample-based music and their willingness to discuss their practice. Participants were compensated for their time in line with musicians union teaching rates. This study was approved by the ethics board at the first author's institution.

The semi-structured format used thirteen questions (Appendix A), lasted 60-120 minutes and explored two main facets that had been identified in the ethnographic observations:

Material How artists perceive and communicate their source and output material

Methods How artists conceptualize and communicate sample transformation processes

Interviews were conducted in person, recorded, and transcribed. In addition to describing their music-making practice, artists provided a demonstration of their practice for analysis.

3.3 Data analysis

Data from the interviews were analysed using thematic analysis (TA) (Braun and Clarke, 2006) to identify key patterns and themes in sample-based music practices. Observation data was considered when relevant to themes. The first author followed the six steps of thematic analysis outlined by Braun

and Clarke (2006): (i) transcription and familiarisation with the data; (ii) generating initial codes; (iii) searching for themes; (iv) reviewing themes; (v) defining and naming themes and sub-themes; and (vi) producing the report. The first author coded the data, completing stages (i-iv), then stages (iv-vi) were iterated upon, while the final author reviewed the codes and themes. The final themes were agreed upon and reported based on discussion between all authors.

4 Findings: sampling & creativity

We identified 113 unique codes (284, including repeats) through analysis of the interviews, which were then organized into four overarching themes: (i) Engaging with Environment (17 unique codes), (ii) Reality and Fiction (14), (iii) Community and Identity (12), and (iv) Negotiating Agencies (9). Sub-themes were developed by clustering related codes that reflected recurring ideas, practices, or tensions across participants' accounts. Table 2 presents an overview of the themes and sub-themes, along with their corresponding (non-unique) code counts. Sections 4.1 to 4.4 provide a summary of each theme, supported by illustrative quotes and descriptions of examples from our ethnographic observations.

Theme	Sub-Themes	Code Count		
Engaging with Environment				
	Active Listening	10		
	Collecting and Documenting	6		
	Digital Environment	5		
	Materiality	3		
	Sense of Place	2		
Reality and Fiction				
	Design Fiction	8		
	Verisimilitude	4		
	Multimodal Expression	3		
	Reality	3		
Community and Identity				
	Reflection	10		
	Competition	7		
	Craft	6		
	Communication	4		
	Legal & Industry Pressures	1		
Negotiating Agencies				
	Control	13		
	Communicating Artist Role to Audiences	6		
	Emergence	4		

Table 2: Overview of themes and sub-themes identified in the thematic analysis. 'Code Count' reflects the total number of codes (including repeats) assigned to each sub-theme.

4.1 Theme i: engaging with environment

Active Listening Artists reported not just looking for samples during defined periods, but rather being 'found by them' (P4) while going about daily life. More than composing, participants describe the act of sampling beginning first with deep, *active listening*, engaging with their environment (P5,6). 'You're just existing without thinking about making sounds, and then all of a sudden there's this sound [...] and [that's] when I record something.' (P1)

Collecting & Documenting Engagement with environment is taken further through the collection and documentation of sounds: '[I take] random sounds that I find interesting and then I resample them. It's like taking a picture of something. [I] don't always make something. I'm *recording* it,



Figure 2: The relationship between sample length and cultural/material relevance – diagram from P1 (recreated for clarity)

I mean it is what is, the word says it all. It's a sample. It's a picture of sound.' (P1, *emphasis in original*); 'Sampling is just like capturing sound in the world however it's generated.' (P2)

Materiality Artists reported engaging with the tangible, material aspects of their environment, for example 'flowing water' (P2), but also treat sound itself as a material which is reflective not only of the environment (what it is sampling), but also of the technology used:

'Whether it's the zoom H6 or my iPhone, or that little zoom recorder that plugs into my phone, I have to work with different sounds [...] you know, the noise and the artefacts in there actually enhance what you're able to do with it [...] I think of sound is kind of like, you know – if we're doing an artistic analogy – clay. And you're moulding it into whatever you need it to be to suit.' (P5)

The relevance of a sounds materiality can be affected by its length, as P4 explains:

'Being able to take a very short fragment of sound [...] is much more material driven, there's not context necessarily in that sample in the same way as the long-form samples [...] there isn't this whole cultural context that surrounds it. It's just a short piece of sound.' (P4)

P1 also reflects this, explaining through a diagram (reproduced in Figure 2) that as a fragment of sound sampled gets smaller and smaller, its focus becomes more on its material and concrete reality, and less about its cultural relevance.

Sense of Place Artists also described engaging with their environment in ways that relate to non-tangible, non-material aspects which are superimposed on one's physical experience of an environment. The first of these aspects is in the relationship between artists' identity and the place, such as nostalgia ('Whenever I'm [home] in the mountains, I try to record things.' - P1) or politics ('I've also, like, done field recordings of protests and stuff like that' - P1). P1 organises their sample library multimodally (sound and image) so as to better capture these non-sonic aspects of the sound.

Additionally, P1, P2, and P5 reflected on the *meaning* of a place, particularly the boundaries between human and natural environments. P2 questioned the concept of "nature,": "I like playing with what "nature" means... Everything touched by humanity is augmented, which kind of further removes it from its "natural" state." (P2). P1, meanwhile, focused on the impact of human activity on the environment, recalling an encounter with an industrial, human sound in an otherwise natural, non-human setting: "I was walking around and I heard this weird turbine making this ominous sound like that's kinda strange. Like that was not supposed to be there, you know? Why did we make this?" (P1).

Digital Environment Digital and online spaces – such as the internet – are increasingly treated as distinct environments. Though lacking physical form, some artists described engaging with them through a sense of place (as discussed previously). Participant P4, for example, spoke about



Figure 3: Arctype (Sam Scott) performs 'ONLINECHORUS' at Iklectik Art Lab – April 27th 2023. The piece resamples a live feed taken from social media website TikTok. Image courtesy of the artist.

resampling 'weird 500-view YouTube videos,' describing these obscure corners of the internet as sonic niches they intentionally explore and reinterpret. Another participant from the CDR community (see Figure 3) treats their TikTok³ algorithm as a 'personalised digital environment' from which they sample.

4.2 Theme ii: reality and fiction

Reality Samples of environments were noted to bridge the gap between art and life. P1 suggests that they are able to relate their compositions to the real world by 'having a collection of unconventional sound that [they] found in real life'. The act of sampling can also alter our relationship to reality. P3 described 'audiation', the process of 'hearing the sound and its possible alternatives' while also hearing the original sound for the first time.

Verisimilitude By situating real sounds within art, sampling presents an opportunity for artists to manipulate notions of truth. P2, who finds nature, the digital, and artificiality to be important narrative devices in their work, does this through the presence and absence of samples: 'using field recordings and sound that references nature, I would create what I would call soundscapes [...] manipulating found sounds, creating something digitally that *feels* quite aesthetically natural' (P2).

In contrast, AI resynthesis of recorded samples polarised artists on its truthfulness. In the ethnography a participant in ClubWIP had used an AI-driven, audio resynthesis tool (synplant⁴) to recreate a sample of another participant's family member singing. The result was appreciated by the audience, but when they discovered the use of AI, they were polarised. Some decried it as cheating, and 'no longer a sample anymore' (ClubWIP attendee), while others found it innovative.

Design Fiction Other sample-based artists that we spoke to operate a broader definition of 'sampling' or 'remix'. These tended to be more technologically driven artists. Of particular interest is the work of P2, who described the instruments they built as 'an attempt to reconfigure relationships to sound'. In sampling, they are not only sampling the sound, but also the ideas and concepts behind interaction with the sound. This is a form of 'design fiction' where the artist is creating a new way of thinking through presenting new interactive prototypes.

Multimodality An important aspect of this interaction is *multimodality*. Many artists use standardised configurations for interacting multimodally with sound, for example, tactilly with sensors (P2), or visually via spectra (P4, 5, 6). However, artists also skew these configurations. For example: P6 describes ambisonic-gesture mappings as 'getting inside a sound, tearing it apart, then replaying it'; P7 describes custom mappings for 'performing samples as though they were a futuristic instrument'; and P4 uses interactive visuals to 'play with the spatial and timbral associations of a sound'.

4.3 Theme iii: community and identity

'My identity [is] in it because it's the materials that I chose' (P4)

³tiktok.com

⁴https://soniccharge.com/synplant?IALWovUHJF=vVnSZmufe

Semiotic Mode Usage at Club WIP



Figure 4: Distribution of semiotic modes (e.g., onomatopoeia, gesture, technical language) used in communication at Club WIP, highlighting variations in cross-group and within-group interaction.

'If you give other people your code [and] sounds, they could just recreate your music ' (P3)

Craft A core aspect of the communities studied is their emphasis on craft. This manifests in shared activities and language. Many methods of socialising in the CDR community are built around the collecting of samples including crate digging (hunting for obscure vinyl), field recording, etc. The ClubWIP community is defined on the basis of sharing techniques. Group identity forms around shared techniques, creating subgroups with common reference points, for example, 'yeah it's got that incinerator sound' (ClubWIP attendee discussing another attendee's composition).

Communication At ClubWIP, conversations about sampling occurred both within established groups and between participants who had just met. This distinction shaped the *semiotic mode* used to communicate sampling processes (e.g., gesture, technical language, onomatopoeia). When describing their craft or asking questions, participants in cross-group conversations used less technical language and more onomatopoeia. In contrast, within-group communication featured more technical language and less onomatopoeia. These patterns are summarized in Figure 4.

Competition While there is a strong community drive, competition for work also shapes what elements of craft are shared, and who is accepted into which groups. Individual identity, virtuosity, and value are demonstrated by finding samples no-one else has, or manipulating commonplace samples in a way that no one else can.

'As media composers, we need to have sonic elements in our scores that are not readily available to everybody else [...] So we are always looking for for new tools [...] to make our Sonic pallettes as unique as possible' (P5)

As a result of this link between sample-sourcing and individuality, people can be wary to disclose their samples, as it might be seen as sharing their 'secret sauce' (P7); dissolving their individuality (P1-7); or exposing them to financial/legal difficulty (P3,4).

Reflection Sampling often requires the repeated audition and manipulation of a sound. For example, P3 organises ideas in two dimensions: temporal (left to right) and conceptual (top to bottom). Commenting and un-commenting ideas in a live-coding program (P1) or arranging them in a grid-based DAW – such as Live's 'session mode' (P1, 2, 4, 5 & 6)⁵ – allows for manipulation and repetition of the same sound or phrase. While this organisation is not exclusive to sampling, that sampling changes the context of an *existing* idea allows us to share and reflect on our ideas at an embryonic stage. P4 highlights how curating and reflecting on samples facilitates collaborative work:

'One of my collaborators made like a dozen [samples], and then I came along and made a dozen more. [...] So the sound world gets collaboratively curated. "This is

⁵Live is a digital audio workstation (DAW), produced by Ableton https://www.ableton.com/live/

my interpretation of the prompt" or "this is my interpretation of the source sample". [...] instead of meeting at the compositional stage where you perhaps interject some of your meaning, you've already got some there because it's in the way that the materials were curated.'

Legal & Industry Pressures External factors such as AI sample-detection, music informatic retreival (MIR) technology and their use for copyright enforcement have shaped the formation of communities in giving them something to resist.

'I'm not trying to get sued, so I have to think very carefully about what I use now.' (P7)

Artists reported going increasingly far to evade detection. They are careful to obfuscate, deconstruct or re-fabricate material 'until it legally becomes a separate entity' (P3), while keeping enough of the sample present to signal its use to those in the know. For example, P3 and P4 reported using style transfer and other generative AI techniques as a route around the legal issues of sampling.

Another external factor in the community is the use of GenAI for music creation by the wider music industry. This has applied pressure to professionals, particularly those in business to business such as sound design for moving image:

'As sound designers, we're competing against AI [that has the ability to] generate sounds on its own. So [...] we have to keep in mind how our sounds are going to still sound unique, but also sound high enough quality than AI can't do the same thing' (P5)

4.4 Theme iv: negotiating agencies

'[Playing piano] there's a bit of agency [but when recording] the sample, I can't really mess with this sound that I'm given. [...] I don't have as much control.' (P1)

Emergence In the process of manipulating a sample, artists describe a process of gradually understanding and working with initially unfamiliar sounds and materials, moving from divergent, chaotic interaction with their environment toward creative emergence, and eventually, a more curatorial convergence. P2, an artist who designs their own sample-based instruments, described the process of creating embodied digital environments: 'Putting samples in a space, leaving a lot of that to the algorithm [...] using my body to trigger them and seeing what happens'. They placed a great deal of importance on the agency of the algorithm, the surprise of the content of the sample, and their own ability to navigate and reflect on this space through embodied action and listening. P4 highlights the importance of the emergent properties of a sample-based system, and how this can be a source of inspiration:

'How probable is it that you would come up with a synth patch that does exactly what this thing does? [...] how probable is it you would have been able to make this through sampling? I think sampling makes this particular sound easy to make.'

Control Lack of control is for many a source of creative inspiration. Samples can serve as creative partners, shaping the outcome of a piece as much as the artist. 'The materials do influence what you do with them' (P4). Some welcome this lack of control:

'I'm really relinquishing control in my practise, because like I don't like doing that in my day-to-day life. And it feels quite liberating.' (P2)

But, others find it important to limit their use of samples so as to maximise their own control & responsibility:

'Limited source material means i have to do more work, which means I have more ownership over my final outcome.' (P3)

Communicating Artist Role to Audiences Disentangling agency becomes more important when considering performing or replaying sample-based music. It is important to artists to have some

level of control over the outcome of a piece, and that they can communicate what they are doing to audiences during live performance. For example, P2 emphasised embodiment in performing sample-manipulation while P3 highlighted the live-coding motto 'show us your screens':

'A big part of the practise as well is about this kind of interaction with the audience or sharing the screen so the audience can see the code being changed and executed in real-time [...] its designed to be easily parsed by people because it uses natural language.' (P3)

This, in turn, shapes the language used to label and describe samples. P3's live-coding sample library must be descriptive (for audiences) yet concise (for the performer). The result is onomatapoeic and semantic descriptions of the sounds (e.g. 'big_swoosh').

5 Discussion: how can understanding sampling help us think about GenAI systems?

Sampling doesn't simply make music-making easier. In fact, there are many reasons to be discouraged from sampling, such as legal pressures, or the effort and equipment required to find original samples. Our ethnographic work suggests that the value in sampling is as a meaning-making process which engages artists with their environment (4.1); explores boundaries of reality and fiction (4.2); forms and reflects community (4.3); and foregrounds agential relationships (4.4). Here we reflect on these aspects of the sample-based community, and how they might inform the design of GenAI tools.

5.1 Theme i: engaging with environment

When artists collect, manipulate, and recontextualize sounds, they engage in a sophisticated interrelational data practice that sensitizes them to their environment, revealing insights about technological artifacts and their sociocultural embeddedness. This practice foregrounds the socio-material nature of digital artifacts and raises important questions for GenAI development. We suggest three potential directions for engaging with environment in GenAI research and design.

Data provenance and modality A sound's appeal often extends far beyond its sonic properties (Blackburn, 2019) and extends to information about it (its metadata). GenAI design that considers the entire data lifecycle may allow users to create deeper relationships with data, understanding and trusting the resultant model more fully as a result. This requires transparency in data provenance, as well as capacity for multimodal representations of data (such as images of the environment in which it was sourced).

Latent spaces as environments The growing impact of digital environments highlights the potential for non-tangible spaces for socio-material exploration. Intermediate representations in GenAIs – such as those used in GANs and auto-encoders – could be reconceptualized as environments to be explored through practices like deep listening and soundwalking, expanding our understanding of digital materiality.

Socio-materiality GenAI systems should be approached not as neutral tools but as socio-material assemblages requiring critical engagement with embedded values and contexts. Where samples serve as the focal point for socio-material context in sample-based music, GenAI calls for a new unit(s) of analysis (Gunkel, 2025). Such units should capture the relationship between training data, model architecture, representation, and output. That the socio-material balance of samples is mediated by their length has implications for GenAI; how do technical decisions (e.g., receptive field size) affect cultural and material relevance?

5.2 Theme ii: reality and fiction

Many sample-based artists place great importance on provenance and truth (that a sample references a real event). By contrast, an AI generated/manipulated sound might often be said to have 'verisimilitude' (the appearance of truth rather than 'truth' itself) – the resultant sound shares many features of the source, but has no referent or is not considered 'real'. We might foreground the negotiation of reality and fiction in GenAI by designing for this tension between reality and fiction. **Explaining reality** We might broaden explainability frameworks in audio GenAI to help users understand not just how sounds are transformed technically but how meaning might be preserved or altered. Explicitly tracking and communicating the social, personal, and providential relationships between input sources and output sounds might help artists better understand what aspects of original recordings remain in AI-manipulated results.

Embracing fiction Conversely, AI outputs' detachment from reality presents creative opportunities, inviting musicians to explore new sonic territories with their own internal logic. Rather than pursuing verisimilitude, we could design AI audio tools that deliberately explore "impossible" sounds and alternate sonic realities, treating latent spaces as creative environments rather than imperfect mirrors of reality. If AI is not able to reproduce sounds *exactly*, then why try to produce anything *like* them?

5.3 Theme iii: community and identity

We described sample-based composition as a highly situated practice in which social aspects of meaning are incredibly important. Modes of representing, communicating and interacting with data are often tied to particular communities of practice. GenAI might explore situated-ness by offering: clearer perspective; contextual representations; and new modal interactions.

AI with perspective Communities of practice are made up of individuals with different strengths, weaknesses, and disciplinary perspectives. This plurality brings dynamism and diversity, which is integral to a craft-based community. In contrast, many GenAI systems are designed to appear omnivalent and all-knowing – lacking clear perspective or positionality. As Vear et al. (2023) argues, GenAI systems that foreground a defined perspective – through elements such as belief, language, or perception – are more likely to be trusted and understood by artists.

Contextual representations GenAI tools can enable community-specific modes of interaction and consider cultural context as well as environmental. This requires that we move away from static notions of interpretability and explainability such as pre-regularised and labelled axes in latent spaces. Instead, we might get more our of our AI tools by embracing vague semantics and multimodal contexts in representations. GenAI tools might also benefit from adaptation of their representations in real-time.

Rethinking Modality and explainability The inner-workings of generative AI systems are fertile ground for artistic expression, and we encourage the exploration of more flexible models, which expose representations, or even weights, in representations and modalities which are meaningful to the artist. While this may not make sense within existing machine learning evaluation frameworks, we are confident that any form of opening of a model is beneficial for artistic practice. We might explore this even further by designing for interaction via community-specific interaction modes (for example sound as a latent representation). Even if that doesn't make sense for the model, it may make sense for the community.

5.4 Theme iv: negotiating agencies

We explored the complex interplay between human creators and sample-based systems, questioning what meaningful creative control entails in this processes. Key tensions emerged between emergence, control, and communication to audiences that we think are important to consider when designing GenAI systems.

Control vs Emergence When trying to create GenAI geared toward artistic practice, we need to emphasise agency within the generation process. This doesn't mean giving the artist more control per se. Rather, it means we need to foreground the multiple agencies at play in the collection, curation, and operationalisation of data, bringing these into interrelation with the artist. This might manifest in precise manipulation or productive uncertainty.

Explanations for Audiences Explainability matters differently for different people in the system. While artists experience their agency directly through practice, audiences struggle to understand these complex technological assemblages. While agentially complex and emergent approaches are may be preferred over traditional explainability within arts practice, recognizing and communicating the agential qualities of data itself is important for audiences. Explainability might therefore be explored as a multi-faceted quality, containing both artist-oriented and audience-oriented aspects.

6 Closing remarks

In this paper, we explored meaning and creativity in a sample-based music community. We identified themes relating to environment; reality and fiction; community and identity; and agency.

From these themes, we drew out aspects of sample-based practices that may be relevant to generative AI. While we acknowledge the limitations of comparing GenAI to sample-based practice—as well as the lack of generalisability from our specific community—we hope that the facets and tensions discussed might inspire the design of GenAI tools that support the creation of socio-materially rich art.

We suggest that a sample-based approach to GenAI is one that makes visible the messy, interwoven agencies of artists, AI systems, and materials—supporting generative work that engages the artist with dimensions of human experience that exceed any single artwork, technology, or medium.

Ethics Statement

This study was approved by the Research Ethics Committee at the lead author's institution.

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ANONYMISED FOR REVIEW

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A Interview Questions

Each interview began (Question 1, 2) by asking the artist(s) to provide an overview of their practice and (3) to describe the process of making a piece in practical detail. Then (4–6), they were asked about their relationship to the material they are sampling. With the next set of questions (7–10), they were asked questions about their model of the processes they use. Finally (11–13), they were invited to reflect on the impact of technologies and AI on these aspects of the practice.

[Notes to the interviewer are in square brackets]

- 1. Please introduce yourself and describe your practice
- 2. Describe the last piece that you made or something that you are working on at the moment. And the role sampling plays in that...
- 3. Describe your process of making an composition or performance.
- 4. How would you describe a sample to a non-musician?
- 5. Where do you usually get samples from? [follow up on locations, habits, intentions]
- 6. What are key things which makes something a 'good/bad' sample? [Be intentionally vague about aesthetic and non-aesthetic components here, allow them to outline their own hierarchy without pushing too much]
- 7. [follow up] When evaluating a piece of music, some musicians might think of qualities like 'time', or 'pitch'. How relevant are these to you? If not, are there any other qualities which you think are worth considering about a sample?
- 8. Once you have identified that there is a sample you'd like to use/manipulate, what are some ways you might proceed?
- 9. Can you pick one of those processes and explain it to a non-musician? You can use words or a sketch to describe this.
- 10. [follow up](How much) does control matter in this process?
- 11. Discuss 'technology' in the context of sampling?
- 12. Has your process, or understanding of sampling processes changed at any point? Can you talk me through a time where this has happened or what has brought it on?
- 13. Do you use artificial intelligence technologies in your work/ process? If so, what for? If not, why not? [hopefully they will talk about samples, here, but if they don't that's also fine]