ABSTRACTS

IN MUSIC 26

INNOVATION IN MUSIC CONFERENCE

- BEYOND TOOLS AND RULES

Aalborg University, June 12–14, 2026

AALBORG UNIVERSITET

Aareskjold-Drecker, Jon Marius (University of Oslo and UiT - The Arctic University of Norway).

Impact of AI Tools on Music Production.

Music production and songwriting tools based on machine learning and artificial intelligence are part of every producer's toolkit. Whether it is the use of stem splitters to clean up tracks, algorithms for mastering, or generative systems for sound creation and lyric manipulation, these tools have found a place in the modern music studio.

However, the rapid introduction of such tools raises many questions. Do they improve the creative process? Are algorithms trained with sufficient awareness of juridical and ethical challenges? Is the use of training data in accordance with existing laws and practices regarding copyright and patents? Do these tools affect artistic output, making music better—or less diverse? Is AI making music creation more accessible by lowering technical and artistic thresholds and enabling non-experts to perform tasks that previously required specialist skills?

Based on interviews, experimental work, and a literature review, this paper explores which AI-based tools are used in contemporary music production, how they are employed, and how they influence the creative process. Technical, juridical, and ethical aspects of different types of AI-driven tools are discussed.

The paper concludes with an analysis of how new workflows may affect revenue streams for music producers, songwriters, and artists.

Aareskjold-Drecker, Jon Marius (University of Oslo and UiT - The Arctic University of Norway).

Atmos vs Ambisonics: Creative Differences in Immersive Formats.

Mixing in immersive formats, designed to place the listener inside a three-dimensional sound environment rather than in front of a left–right stereo image, allows for many creative opportunities beyond traditional stereo mixing. However, there are different immersive formats, each with its own strength and challenges.

This paper/performance/workshop explores the creative differences between mixing in Atmos, created by Dolby Laboratories and used in movie theatres and commercial 3D audio distribution, and ambisonics, a format that is used extensively in electro-acoustic music and VR.

The music used in the paper/performance/workshop is a sonification of Aurora Borealis/Northern Lights. With the use of positional signals from an antenna array positioned in Kilpisjärvi in Northern Finland, soundscapes and composed music are projected into an 3D audio dome and create a real-time sonic experience of the movement of the Aurora on the sky over the arctic parts of Norway, Sweden and Finland.

These compositions exist in both ambisonics and Atmos, and in the paper/performance/workshop the workflow and creative opportunities inherent in the formats are explored, along with a discussion of the challenges encountered when working in the different 3D arrays.

Participants are invited to explore the immersive mixes and remix the performances in real-time.

Ahmed, Ashour (London College of Music, University of West London).

Translating the Unusable: An Actor-Network Study of Proactive and Reactive Mixing Workflows.

When a mix engineer receives recordings with excessive artefacts, what determines whether they are usable or need re-recording? This paper argues that the answer lies not with the engineer alone but within the

human-technology networks that make assessment and repair possible. Human agents such as engineers, artists, and clients, and non-human agents such as AI-assisted tools, traditional plugins, spectrograms, and session files, all participate as actants within these networks, shaping what becomes perceivable, repairable, and ultimately usable. Employing Actor-Network Theory, specifically the four-stage model of translation alongside the concepts of delegation, inscription, and black boxing, this study examines how these distributed networks reshape the conditions for creative decision-making in professional audio mixing.

This paper proposes that contemporary mixing typically begins with a proactive workflow. Following Callon's translation model, practitioners first problematise: identifying issues such as excessive plosives, sibilance, rustle, inadequate gain levels, or clipped and unintentionally distorted recordings. In the interessement stage, they assign roles, delegating repair tasks to AI-assisted tools while positioning themselves as diagnostic listeners. During enrolment, practitioners listen back to assess whether the problem is resolved. If successful, mobilisation occurs: the network stabilises, the repaired audio black boxes, and the engineer moves to the next edit. However, when the network fails to stabilise (an artefact remains, a repair sounds unnatural), practitioners return to interessement, adjusting AI tool parameters and reassigning roles. If repeated attempts fail, they shift to a reactive workflow, turning to traditional plugins to address problems manually.

Through autoethnographic reflection, this account examines how these dynamics unfold in practice. The central example involves a rapper's vocal session where clothes rustle (inseparable from an energetic performance) required repair. Working proactively with AI-assisted de-rustle processing, an attempt was made to stabilise the network; when this failed, a reactive approach through traditional tools was adopted. This paper argues that understanding mixing as co-creation within hybrid networks, where roles are distributed across human and non-human agents, and where proactive and reactive approaches oscillate in response to network stability, is essential for critically engaging with the technologies that increasingly shape professional audio mixing practice.

Andersen, Claus Sohn (Kristiania University College).

'Mind The Gap!' - Strategies for overcoming challenges of separation and mediation when recording live-in-the-studio.

Any seasoned musician, engineer, or producer will likely have an abundance of stories and experiences from recording sessions where listening conditions during performance, physical layout of the studio, or other practical considerations got in the way of capturing an optimal musical performance. In most cases, such challenges are largely resolved or circumvented, but given that studios cannot be rebuilt to suit every session, neither in terms of signal path and hardware, or in terms of physical layout, how do recordists deal with such challenges related to separation and mediation?

The large body of ‘how-to’-literature on recording practice all but skips such challenges, leaving solutions and workarounds as largely tacit, experiential knowledge, often passed on from seasoned recordists to newcomers in informal ways.

Building on previous research (such as Williams (2009), Davies (2022), and others), the proposed chapter and presentation present findings from interviews with professional recordists as well as two recording session cases. As such, the presented research aims to document the aforementioned tacit knowledge and methods utilized by professionals to circumvent the challenges presented by studio layout and equipment.

This research is part of an on-going doctoral research project.

Andersen, Johannes, (Masterplants Orchestra)

Plant Music Workshop

Masterplants Orchestra is a pioneering interdisciplinary project situated at the intersection of bio-signal processing, creative technology, and symphonic composition. The core innovation lies in the advanced application of "Biosonification"—the process of capturing micro-voltage fluctuations within botanical organisms and mapping them to musical parameters.

Our project advances the field through a custom-designed Multi-Plant Biosensor Interface, engineered to bridge the gap between biological unpredictability and symphonic structure. The system utilizes a specialized hardware array that monitors the bio-electrical activity of up to eight individual plants simultaneously via non-invasive surface electrodes. These biological signals are processed as real-time data streams, algorithmically translated into MIDI and OSC protocols.

By utilizing advanced sound design architectures, the plants function as primary oscillators and rhythmic modulators. This allows for the creation of complex "interspecies" musical works where the plant is not merely a source of randomness, but an active participant in a structured sonic environment.

Artistic Method and Interspecies Collaboration:

Since 2018, I have served as the system designer and lead composer for Masterplants Orchestra, presenting this work globally at universities and international festivals. My methodology focuses on creating a "harmonic bridge" between human aesthetic expectations and biological reality. In an era characterized by ecological crisis and technological isolation, this work utilizes innovation to foster a renewed empathy for our natural ecosystem. In a performance context, the plant ceases to be a decorative object and becomes a co-creator.

My role involves managing the technical ecology of the performance, ensuring that the biological data is musically intelligible without losing its organic integrity. To achieve this, I employ microtonal scaling and non-linear generative structures that reflect the plants' natural electrical pulses, thereby challenging the rigid constraints of traditional Western tonality and exploring new frontiers in algorithmic composition.

I am applying to present Masterplants Orchestra at InMusic26 to demonstrate how bio-integrated systems can expand the horizons of contemporary music production and performance. My presentation will live plant music from the suite "In Ovule", which demonstrates various modalities of interaction: from autonomous plant-driven symphonies to hybrid compositions where human vocalists and instrumentalists perform in response to plant-controlled synthesizers.

This work identifies significant potential for innovation in immersive audio, interactive installation, and musical research. I aim to share insights into the iterative development of my symphonic apparatus and the challenges of synchronizing multiple biological data sources in a live setting.

The goal of Masterplants Orchestra is to utilize music technology to build a bridge of sound—a reminder of our shared biological essence. I look forward to contributing to the discourse on musical innovation at InMusic26 and exploring the future of bio-technical creativity.

Armstrong, Toby (University of West London).

What musicians want their music to do: AI-assisted thematic analysis and intentionality in individual practice.

This paper proposes a future research project that explores how an established methodological framework for analysing intentional decision making in jazz composition and improvisation might be extended to individual music practice through AI-assisted thematic analysis. The intentionality framework and tripartite analytical lens informing this proposal were previously presented at the Innovation In Music Conference 2025 and have since been accepted for publication in the Innovation In Music 2025 Book and are therefore not re-presented here. Instead, the paper uses the conference as a sounding board to examine the feasibility and implications of translating this methodology into a self-directed research and pedagogical context.

The proposed project would adapt structured qualitative improvisation-as-composition experiments originally designed for doctoral research into a format suitable for individual practitioner-researchers. Reflective data would be generated through AI-assisted thematic interviews intended to prompt musicians to articulate what they intend their musical actions to mean or accomplish across three analytical tiers: compositional genesis, motivic development, and assemblage.

AI tools are envisaged as supporting, rather than automating, the early stages of reflexive thematic analysis. Within this projected workflow, AI would generate provisional codes and candidate thematic groupings using a tripartite lens comprising structure, intention, and language, while interpretive authority would remain with the individual practitioner, who would be required to validate, revise, or reject all analytical suggestions.

The paper argues that enabling musicians to engage with intentional analysis earlier in their creative development may offer a meaningful counterweight to schematic or rule-based learning and suggests that incorporating intentional analysis into the learning practice of early career musicians may support the development of a deeper, individual understanding of what they want their musical choices to mean. At the same time, emerging musicians increasingly operate within musical environments shaped by AI systems whose strengths lie in schematic pattern learning and stylistic modelling, raising questions about how human musicians might develop forms of musical understanding that extend beyond such schematic competencies.

The project is presented as a proposed next phase of research, intended to be developed following doctoral study and potentially undertaken as postdoctoral work.

Bacot, Baptiste (RITMO, University of Oslo).

A corpus of Ableton Live Sets: theoretical and methodological challenges in the study of DAW creativity.

DAWs aggregate tools to generate, process, sequence and arrange sounds. Inherited from the hardware studio ecosystem, they have profoundly influenced popular music aesthetics and reconfigured genre boundaries (Reuter 2022). Akin to a musical laboratory that encourages sonic exploration and experimentation (Brett 2021), the DAW nonetheless remains a “genre-specific medium” (Marrington 2019) that maintains strong ties with the aesthetics of electronic music. From the 1990s onwards, particularly in groove-based genres and EDM, DAWs have reconfigured approaches to rhythm—"the raison d’être of electronic dance music” (Butler 2006)—through various sound manipulations and transformations (Danielsen 2020; Brøvig-Hanssen et al. 2020, 2022). Although these evolutions in digital music production have been confirmed in the abovementioned works, the particulars of EDM production remain seldom studied. How do electronic music producers precisely leverage

the DAW environment to design grooves and tracks, at the intersection of genre conventions and experimentation? This paper represents an effort to engage with these issues by approaching DAW-based EDM production at the closest level: it explores a corpus of eighty Ableton Live Sets (ALS, that are DAW source files) from Mr. Bill, a professional electronic music producer, DJ, and educator. The corpus spans over nine years and gives a valuable access to the producer's workflow and creative process (Brett 2019), and serves as a case study for Bass music—an umbrella term for bass-driven, hardcore EDM subgenres with prominent experimental attributes. However, due to their volume and complexity, these files also pose a series of theoretical and methodological challenges, that are also discussed. The paper demonstrates three ways of engaging with the corpus, which open new paths in the study of DAW creativity. First, the ALS are scrutinized as XML files in which production information is retrieved by a bespoke analytical tool. Second, as tracks or buses can conveniently be rendered, grouped tracks are examined with a signal analysis tool, which reveals the rhythmic role of timbre and dynamics in Bass music. In turn, and third, these quantitative approaches lead back to the original ALS files with a qualitative perspective. Ultimately, this corpus study supports the idea that Bass music creation is as much about sequencing sounds (organising events on the grid) as it is about shaping rhythm through production decisions (designing spectral and dynamic properties of musical sounds). In addition, the innovative methods introduced in this paper pave the way for future research on EDM production based on the analysis of DAW source files, or any other genre that uses such music production tools.

Bagshaw, James (Leeds Arts University).

The Ambisonic Canvas as a Co-Creative System: Composing Beyond Tools and Rules in Spatial Music.

This paper proposes the Ambisonic Canvas as an innovative compositional method for spatial music, building on existing research in spatial composition and higher-order Ambisonics. The framework was developed to challenge approaches in which spatialisation is treated as a technical process or post-compositional layer. Instead, the Ambisonic Canvas positions space as a primary compositional domain, enabling musical ideas to be conceived and shaped spatially from the outset.

At the core of the Ambisonic Canvas is a shift away from tool-driven and rule-based workflows. Higher-order Ambisonics is not approached as a technology to be operated or optimised, but as an environment for musical thought. Spatial behaviour functions alongside pitch, timbre, rhythm, and form as a generative parameter, shaping musical structure through listening-led engagement rather than predefined procedures. This allows composition to emerge through interaction with spatial behaviour, rather than predetermined norms.

The paper argues that this approach reconfigures the relationship between composer, format, and space. Working within the Ambisonic Canvas involves sustained negotiation with a responsive system in which spatial behaviour actively informs compositional decision-making. Critical spatial listening becomes a central compositional act, and musical outcomes are shaped through dialogue between intention, spatial format, perceptual response, and context.

Drawing on a portfolio of spatial music realised through practice-as-research, the paper examines how the Ambisonic Canvas supports composition beyond tools and rules. Spatial outcomes are treated not as applied techniques but as emergent musical structures that influence form and gesture over time. This foregrounds spatiality and its relative uncertainty as a productive compositional force, aligning innovation with exploratory practice rather than technological affordances alone.

The Ambisonic Canvas is proposed as a method for composers, researchers, and educators working with immersive and spatial sound. By establishing HOA as a base compositional domain, the framework offers a way

to communicate spatial practice beyond specific technologies or venues, supporting both creative production and critical discourse. This paper positions the Ambisonic Canvas as a transferable model for spatial music practice, contributing to broader conversations on co-creation, format-independent composition, and innovation in modern music.

Bagshaw, James (Leeds Arts University).

Composing With Space: Site-Specific Speaker Arrays as Creative Agents in Ambisonic Spatial Music.

This paper examines site-specific loudspeaker arrays as creative agents within spatial music composition, positioning spatial composition itself as the primary mode of research. Building on existing work in spatial and site-responsive practice, and informed by the Ambisonic Spatial Canvas framework, the paper argues that spatial composition emerges through sustained engagement with space as an active, responsive system rather than a neutral site of presentation.

The Ambisonic Spatial Canvas provides a compositional framework in which higher-order Ambisonics operates as a shared spatial domain, allowing spatial relationships, behaviours, and gestures to be developed as core musical material. Within this framework, spatial behaviour is treated as a compositional parameter from the outset, shaping musical form through listening-led interaction rather than applied spatialisation strategies.

The research is developed through a series of practice-based compositional investigations, including work undertaken at the Spaes Spatial Audio Loft, Berlin, in February 2025, and at the Royal College of Music (KMH), Stockholm, in February 2026. Each site presents distinct spatial configurations and perceptual conditions that directly inform compositional decisions. These environments are treated not as variables to be neutralised, but as collaborators that shape musical gesture, density, form, and temporal organisation.

Central to the paper is the claim that composition functions here as a mode of inquiry, with higher-order Ambisonics operating as the technical medium through which spatial relationships are explored. Musical works are not illustrations of prior research questions, but sites through which spatial behaviour is tested and negotiated, ultimately understood through interaction with different physical and speaker reproduction conditions. The act of decoding ambisonic material into specific spaces is treated not as a final rendering stage, but as an extension of the compositional process, revealing how spatial structures respond to architectural and perceptual context. Loudspeaker arrays therefore operate as co-creative systems, shaping perceptual influence on the evolving work and reconfiguring compositional agency between composer and space.

Methodologically, the paper adopts a practice-as-research approach in which site-specific compositions function as the primary research output. These works are examined through reflective analysis and comparative listening, both within the sites in which they are composed and through controlled listening conditions. This approach presents situated listening and immediate responsiveness as productive compositional forces, supporting an ecological model of innovation in music in which technology, architecture, listening, and musical intention are inseparable. The paper is intended for composers and practitioner-researchers working with spatial and site-responsive music practices.

Benalcazar, Diego (University of the Arts London).

Yanantin: A decolonial approach to technology in music composition.

As technology becomes central in contemporary music-making, much of it remains rooted in Western-centric paradigms. Building on previous research on ancestral sound practices and decolonial approaches to the

creation of virtual instruments, this paper urges critical engagement with digital music technologies to transcend standardised conventions.

The primary aim of this study is to explore how composers can critically engage with existing digital music technologies to develop compositional practices that resist and reconfigure Western musical norms. The following research questions guide the investigation: How do Western-centric design choices in music technologies shape compositional practice? In what ways can a decolonial perspective inform the creative use of these technologies? What new compositional methodologies can emerge from this critical engagement?

Adopting an autoethnographic methodology, this research draws on the author's experiences as a technologically oriented composer who, in the piece Yanantin, merges Andean ancestral sonorities and electroacoustic music through a decolonial approach. The study documents and analyses compositional processes that foreground technology as an active collaborator alongside Andean sonic traditions. Through case studies and reflective practice, the paper identifies strategies for utilising both hardware and software as artefacts of mutual listening, negotiation, and creative inspiration, in line with the conference's themes of resonance and co-creation.

The inquiry reveals that while digital music technologies often reinforce Western musical structures, they can also be reconfigured through intentional, culturally driven, reflexive practices. By foregrounding non-Western musical sensibilities and embracing experimental workflows, composers can subvert technological limitations and generate novel forms of musical expression. Specific examples from the author's practice illustrate how available music technology may serve as partners in sonic exploration rather than passive instruments.

This research contributes to ongoing conversations about decoloniality in music and technology. It offers practical insights for composers, educators, and technologists seeking to expand the creative affordances of digital tools, fostering greater inclusivity and diversity in music-making. The study highlights the importance of reflexive, critical engagement with technology as a medium, a collaborator, and a co-creator, inviting new possibilities for contemporary and innovative music-making.

Bie, Alexander (Hong Kong University of Science and Technology (GZ)) and Mark Grimshaw-Aagaard (Hong Kong University of Science and Technology (GZ)).

The Producer as Puppet.

The role of the creative music producer emerged alongside technological progress in the recording studio and has been previously discussed in terms of a transition from craft to art. The rise of generative Artificial Intelligence music tools, such as Suno, which are capable of generating entire tracks in the blink of an eye, marks another turning point for the profession. These tools are increasingly being integrated into music production workflows, with, according to reports, 87% of producers incorporating it into their music workflows, and 66% of those using it for creative tasks with 77% worried about losing their originality or creativity. This raises questions about how creative authority is distributed between human and machine whose sole and tenuous relationship to any form of experience—necessary for creative agency—comes about through what we term a received phenomenology. In showing that Don Ihde's postphenomenology is not sufficient to analyse the use of generative AI tools such as Suno, we argue that the growing presence of such tools repositions the producer as puppet rather than artist.

Historically, technologies such as tape machines, consoles, and outboard gear (or their digital emulations) functioned as hands-on tools that would function as embodied extensions of the producers, allowing them to engage directly with the sound. In Ihde's terms, these tools represent a hermeneutic relation, in which they

become transparent extensions of the producer's creative intent. Generative AI tools such as Suno elide this relationship by posing a new paradigm in which there is no embodiment of the technology within the putative producer, and embodied cognition, along with the individual's phenomenology, is abdicated.

We argue that these systems create the appearance of a wide range of creative paths while, in practice, situating decisions within a constrained and statistically normative space. What appears as openness and creative freedom is therefore better understood as a tightly bounded field of acceptable outcomes catering to creating music that fits in a tidy, formulaic mold. We engage with debates concerning intention, intentionality, human creativity, and artificial creativity framed within a critique of generative, AI-based music production tools in order to highlight the impossibility, within an AI ecology, of that embodiment which postphenomenology claims for human engagement with technology. Ultimately, we propose that the shift of agency within the music production pipeline towards AI and away from the creative mind traps the producer within the hyper-economisation of an AI ecology serving neoliberal principles. The result is that the producer, in this cloudalist, technofeudal landscape, is rendered as nothing more than a puppet.

Bonoldi, Lorenzo (University of Salford), Trevor Cox (University of Salford) and Adam Hart (University of Salford).

Adapting the Mix: How Hearing Differences Reshape Professional Audio Practice.

Music production workflows often assume listeners and practitioners have typical hearing, despite the fact that many audio engineers work with tinnitus, high-frequency loss, unilateral differences, or other hearing conditions. This study investigates how such hearing differences shape perceptual judgement and technical decision-making in music mixing, contributing to Innovation in Music 2026's theme of "music beyond tools and rules" which calls for research that rethinks creative practice when listening conditions diverge from normative assumptions. Twelve audio engineers reporting hearing differences took part in in-depth semi-structured interviews, and reflexive thematic analysis was used to examine how their auditory profiles influenced critical listening, spectral evaluation, spatial judgement, and workflow strategies.

Findings show that participants' mix decisions were closely mediated by their own auditory perception. Many relied on perceptual memory, embodied listening strategies and trusted reference tracks to compensate for reduced sensitivity in particular frequency regions. To manage uncertainty, engineers implemented a range of adaptive methods, including real-time spectral metering, mono and left–right comparison, varied monitoring levels, translation checks across devices, and multimodal verification. These practices reflect ongoing innovation in mixing workflows and resonate with the conference's focus on human–technology interaction, where tools such as analyzers, visualizers and reference-curve systems increasingly act as collaborative partners in creative decision-making.

Participants also expressed strong interest in emerging forms of personalized or adaptive technology, including audiogram-informed equalization, perceptual-simulation plug-ins and customized mix deliverables. Such developments directly align with Innovation in Music 2026's interest in adaptive systems, AI-mediated listening and new forms of co-creation between humans and technological systems. At the same time, participants highlighted the importance of inclusive production approaches, such as collaborative co-listening with clients and offering alternate mix versions, contributing to broader discussions of diversity, representation and accessibility within contemporary music practice.

By foregrounding the lived experience of audio engineers with hearing differences, this study challenges normative assumptions within music production and demonstrates how creative practice evolves when

perceptual conditions fall outside typical hearing ranges. The research identifies opportunities for developing more inclusive, perceptually grounded production tools and workflows, and shows that hearing diversity is already embedded in everyday audio‑engineering practice. Future work will build on these findings through controlled mixing experiments and listener‑evaluation studies examining how mixes produced by engineers with different hearing profiles translate across varied playback systems. Additional research will explore audiogram‑responsive processing, perceptual‑simulation tools, adaptive monitoring systems and haptic or multimodal augmentation, as well as investigate how inclusive mixing practices can be integrated into education and professional training. These next steps aim to develop a comprehensive framework for inclusive audio engineering and inform the design of next‑generation tools that support, rather than constrain, artistic autonomy.

Bright, Danny (University of Sussex) and Lee Westwood (University of Sussex).

The no-input pedalboard – habitus, embedded knowledge and their role in engendering unique spaces for performer/instrument collaboration.

This paper explores the way in which the no-input pedalboard, through its position as a new instrument derived from repurposed technology, brings with it embedded knowledge (Alperson, 2008) from guitar culture. The no-input pedalboard, as developed through the Noise Peddler project (Bright and Westwood, 2018, 2021, 2024), is a modular and restructurable network-instrument which repurposes tools designed as signal processors for guitars (and other instruments) as the primary instrument for composition and performance.

Exploring an inherent paradox in effect pedal design (a tool built to be sat on the floor and triggered with the feet, yet manipulated with an interface designed for finer control with the hands), the work of Noise Peddler suggests that the guitar pedal brings with it a latent potential shaped by its originally intended purpose. This invites novel modes of music-making, encourages unique performative gestures and offers a sound palette uncharacteristic of other electronic instruments.

This paper engages with the notion of habitus (Coessens & Östersjö, 2014), which outlines the position of learned and culturally inherited knowledge, experience and values we work from as musicians, and demonstrates how the performer's habitus interacts with the embedded knowledge of the guitar pedal to create a space for collaborative music-making. As an instrument with no existing repertoire, notation, pedagogy or tradition of compositional and performative approaches, the work to build a musical language with the no-input pedalboard becomes a testing ground of negotiation and experimentation, whereby both the form of the instrument and the practical approach and aesthetic goals of the performer are influenced by one another.

Lähdeoja's (2008) theory of the network-instrument is applied as a way of defining the no-input pedalboard's instrumentality, and demonstrating the principal way in which the instrument's structure is impacted by the user. In turn, the work of no-input pedalboard duo Noise Peddler is used to illustrate the ways in which compositional and performative ideas are shaped by the instrument's embedded knowledge, its resistances and affordances.

Clijsen, Edward (De Montfort University)

Redividing the Octave for Expanded Tonal Spaces: Further Practical Explorations of Formalised Approaches to Polymetric Polymicrotonal Composition.

This paper provides an introduction to the piece Amsterdamned (2025), for Carla Rees and the Huygens-Fokker Foundation (Amsterdam, NL), representing a further exploration of methods for intuitive utilisation of (poly)microtonal techniques and a preliminary investigation into formalised methods for approaching polymetric polymicrotonal composition—the use of multiple metres and tuning systems simultaneously. Amsterdamned is composed for Fokker organ, Carrillo piano and Kingma System alto flute therefore being rooted in 31-, 96- and 24-EDO (equal division of the octave), respectively. The Fokker organ and Carrillo piano, due to their construction, are strictly granular in their microtonal capability (i.e., the fixed adherence to the theoretically equal steps of a given octave division), whereas the Kingma System alto flute is inherently fluid in its microtonal capability (i.e., the capability for extension, structural or inflective, beyond the theoretically equal steps of a given octave division) providing opportunity for extension beyond its foundational 24-EDO frame. Throughout the piece the juxtaposition of these two concepts, microtonal fluidity and granularity—which deal with methods for conceptualising and exploring the broader pitch field beyond the standard Western twelve-tone frame—is explored. Additionally, the potential for facilitation of intuitive polymetric applications of melodic constructions via the concept of sound fields (i.e., the creation of groups of paradigmatically related clusters of microtonal notes) is also investigated.

Relating to the conference theme of Music Beyond Tools and Rules and innovative approaches to music composition/research, the work presented in this paper typifies the underlying aspect of 'pushing beyond the boundaries' of conventional Western musical propensities and constraints in my research, reflecting a broader interest in the salience of notions of expression, progression and transgression in music composition. My research investigates new approaches to microtonal composition by devising and synthesising formalised generative systems through which the subtleties and complexities of microtonal tunings can be effectively handled and explored in composition to discover, compare and develop the expanded harmonic and melodic principles that microtonal tuning constructs afford and investigate the resultant implications for form in microtonally-based work. The (pre)compositional process for Amsterdamned has fostered a hybridised formal-intuitive texturally affect-informed compositional approach, expanding composition beyond traditional Western major and minor modalities. The 'sound field' approach has encouraged the development of an intuitive self-similar/referential compositional 'feedback loop' facilitating the exploration of the novel tonal/timbral space established by the combination of 31- and 96-EDO, as well as the chosen instrumentation, providing insight into the latent affective potentialities in polymetric polymicrotonal compositional procedures.

The work outlined in this paper builds upon two previous compositions, Geïsoleerd (2024) for Solo Kingma System alto flute, and Äußern (2024) for microtonal trumpet(s)—introduced at the previous Innovation in Music 2024 and 2025 conferences. Whilst Geïsoleerd and Äußern, characterise the development of an advancing practical and conceptual framework for microtonal composition, Amsterdamned represents the next stage of development within an evolving microtonal practice, encompassed within the research project Redividing the Octave for Expanded Tonal Spaces, supported by the AHRC through the Midlands4Cities (M4C) DTP.

Coelho, Guilherme (Technische Universität Berlin).

Emergent Sound Objects: Intersemiotic Prompting and Sonic Reterritorialization in Text-to-Audio AI.

Text-to-audio AI systems such as Suno and Udio have introduced a fundamentally new mode of musical engagement: the production of sound through linguistic prompting. This paper explores a particular kind of characteristic sonic entity enabled by diffusion-based synthesis—reterritorialized sound objects—examining the intersemiotic interactions and prompt engineering approaches through which they emerge. These systems constitute aesthetic-epistemic environments capable of generating genuinely distinctive musical forms through the collision and reinterpretation of signifiers within latent space.

Central to this inquiry is how text-to-audio generative models process signifiers and render them sonically. When prompted with heterogeneous or contradictory descriptors—combining timbral qualities, stylistic markers, cultural references, and technical specifications, such as "avant-garde, plunderphonics, folk, glitch, neo-classical"—the model performs a distinctive act of semiotic interpretation, merging codifications in ways that produce emergent sonic behaviors irreducible to their originary contexts and particular milieus. The outputs bear spectral traces of multiple sonic territories without resolving into any singular source; they are simulacral entities reterritorialized onto latent formations—emergent categories existing only as tendencies within learned distributions. Extending this logic, we can speak of latent signifiers, latent performances, and latent sound objects: sonic phenomena whose conditions of possibility reside in the interpretive and generative capacities of transformer-diffusion architectures and its emergent conditions.

Reterritorialized sound objects emerge at the intersection of semiotic collision, stochastic generation, and the particular materiality of diffusion models. Emergence is fundamental: identical prompts yield perpetually different outputs, and the more varied the input, the more unpredictable and singular the sonic result. The prompt conditions emergence, initiating stochastic processes whose sonic resolutions remain contingent. Text-to-audio synthesis and the model's apparatus (e.g., Udio, Suno) impart their own aesthetic signatures—characteristic artifacts, spectral qualities, and sonic representations (and misrepresentations) that constitute a medium-specific materiality distinct from acoustic recording and conventional digital synthesis.

Text-to-audio generative models open remarkable possibilities for sonic exploration, producing sound objects that would be difficult to replicate through other musical means and, perhaps more significantly, challenging to conceptualize or imagine prior to their emergence. These systems encompass vast generative possibilities and distinct sonic forms, with each prompt opening onto multiple potential realizations. This paper proposes a framework for understanding and generating reterritorialized sound objects—genuinely novel musical entities that escape the structuralist logic of fixed codifications and predetermined forms—and presents a set of sound objects reflective of these characteristics. These singular assemblages represent new conditions for musical experience, configurations whose existence is inseparable from the semiotic, stochastic, and material architecture of text-to-audio generation.

Sound Examples:

https://drive.google.com/drive/folders/1d6bdmnswcVEcedJwHV2JvtctR9kWQvyC?usp=sharing

Delegos, Spiros (Sibelius Academy Uniarts Helsinki).

Musico-Cultural Trajectories and Stylistic Heterotopia as Theoretical Tools: The case of Yovan Tsaous in Interwar Rebetiko.

Rebetiko is widely identified as a Greek urban popular music tradition that emerged in the first half of the twentieth century. This genre exhibits polystylism, reflected in the leading solo instruments such as the violin, oud, kanun (closely connected to the Anatolian styles), and the three-course bouzouki (characteristic of the Piraeus style), among other stylistic currents; however, by the mid-1930s, the three-course bouzouki idiom was established, characterizing its typical sound.

In recent decades, perceptions of rebetiko as a vital component of Greek national music heritage have prevailed, fostering discourses intertextually related to ethnocentrism and the East-West dichotomy. Nevertheless, various musico-cultural rebetiko phenomena beyond the narrow boundaries of musical Greekness do exist, yet they have not received commensurate scholarly attention. Rebetiko is documented through commercial gramophone recordings by artists in transit across a broad cosmopolitan and translocal space. These agents were associated with Greek-speaking communities, which extended from the late Ottoman Empire and the contemporaneous Greek state to the United States and beyond.

Within this musico-culturally diverse rebetiko-related network of mobile actors, moving beyond ethnocentrism and hegemonism—primarily framed within the East–West dualism—I examine Ioannis Eitziridis (1893–1942), a prominent rebetiko figure from Ottoman Kastamonu near the Anatolian Black Sea coast, artistically known as Yovan Tsaous. After settling in Piraeus, Tsaous produced a limited number of recordings in the mid-1930s, performed on his unique "tambouri". Positioned between the Ottoman saz and the equal-tempered three-course bouzouki, with a distinctive timbre and microtonal capability, this plucked string instrument embodies novel organological technology and reflects Tsaous' creativity and innovation.

Coupled with my focus on his musico-cultural trajectories, I argue that Tsaous' tambouri contributed to articulating a stylistic amalgamation, in-betweenness, and ultimately idiosyncrasy—what I understand as a stylistic heterotopia within the interwar rebetiko world. In this regard, I explicate one of his rebetiko recordings, "O Katadikos" [The Convict] (Athens, 1936), whose melody originates from Kastamonu yet is also regarded as a Turkish traditional tune, thus simultaneously underscoring the nationalisation of shared Ottoman music (Pennanen 2004) and raising issues of intertextuality.

In my study, I adopt a historical ethnomusicological perspective, including musico-textual analysis, and introduce two innovative analytical and interpretive tools: "musico-cultural trajectories," informed by anthropologist James Clifford's emphasis on routes over roots, travelling over dwelling (1997), and "stylistic heterotopia," derived from Michel Foucault's philosophical concept of heterotopia (1986) after its contextualisation within the musico-cultural field. This form of heterotopia functions as a subject-oriented theoretical model for the outcome of a three-component musico-cultural process: representation-contestation-inversion (concepts drawn from Foucault's terminology). Styles informed by Tsaous' musico-cultural trajectories, rooted in Ottoman saz and makam music and the equal-tempered three-course bouzouki of rebetiko, are represented since they are recognisable, are transformed—"inverted" to quote Foucault—and are simultaneously contested as their character changes through musical blending.

By focusing on Tsaous' musico-cultural trajectories and stylistic heterotopia, this study showcases the musico-cultural diversity of rebetiko and challenges ideologically charged viewpoints of its development, offering new insights and theoretical tools applicable to broader music research.

Dhara, Debrani (University of Tuebingen).

Jazz As Co-Creative Innovation In Beloved by Toni Morrison.

Despite extensive scholarship on jazz and literature, we lack sufficient understanding of how contemporary writers transform jazz from subject matter into structural principle, using musical form to fundamentally reshape narrative itself. This question is particularly urgent given ongoing conversations about diversifying literary canons and centering Black aesthetic traditions. This paper examines Toni Morrison's Beloved (1987) through close reading informed by Black aesthetic theory (particularly the work of Amiri Baraka and Fred Moten) and reader-response criticism, analyzing how Morrison translates specific jazz techniques like improvisation, call-and-response, temporal fragmentation, and polyrhythmic layering, into narrative structures that demand new reading practices. Consider the novel's opening chapters, where past and present collapse into each other without transitional markers, mirroring the temporal simultaneity of jazz improvisation. Sethe's memories interrupt the present-tense action as a saxophone solo might disrupt a steady rhythm section, requiring readers to hold multiple temporal layers in tension as what I term "polyphonic reading." The fragmented sentence "124 was spiteful. Full of a baby's venom" (Morrison 3), operates like a syncopated rhythm, its grammatical disruption creating semantic space that readers must complete through interpretive improvisation. Morrison's jazz aesthetics reject linear realism as inadequate for representing trauma and Black American experience. Instead, Beloved trains readers in "jazz listening", attending to ambiguity, multiplicity, collaborative meaning-making, and rhythmic patterning over narrative closure. This reading practice positions audiences as improvisatory participants rather than passive consumers. Morrison does not establish definitive meanings but creates patterns of rhythm, tonal shifts, and narrative echoes that prompt reader interpretation. We complete the silences, follow fragmented thoughts to their conclusions, and hold conflicting temporalities in tension. This collaborative dynamic mirrors how jazz musicians respond to each other's cues in performance, making meaning through collective improvisation. By centering Black musical traditions as foundational rather than ornamental, Morrison asserts cultural authority and creates narrative forms capable of representing what conventional realism cannot. This intervention demonstrates how aesthetic innovation and cultural equity are inseparable projects, directly addressing conference themes of diversity and representation in music and culture. The research reveals that jazz-inflected expand literature's representational capacity, particularly for stories of trauma, memory, and marginalized experience that resist conventional linear forms. Understanding how readers develop "jazz listening" habits illuminates broader questions about how aesthetic forms shape consciousness and how diversifying formal structures creates space for previously unrepresentable experiences. This work contributes to ongoing conversations about decolonizing literary form and demonstrates the transformative potential of placing Black aesthetic traditions at the center of literary innovation.

Dumitrescu, Petru Andrei (University of West London) and Justin Paterson (University of West London).

Do You Feel The Music? Affective AI for Expressive and Aesthetic Music Education..

Music-education technologies have traditionally emphasised technical skill acquisition within a utilitarian paradigm, prioritising extrinsic outcomes over the intrinsic and aesthetic dimensions of music education and practice. Accordingly, artificial intelligence (AI) platforms often focus on generating musical outputs – such as audio, MIDI, or procedural instructions – rather than dynamically supporting users ’musical activity from a collaborative perspective.

Capitalising on recent technological advancements, this research proposes an affective-AI prototype that is vocally operated during musical activity by users with varying levels of musical experience, with the aim of developing and consolidating their practice. The study acknowledges that current AI systems do not yet demonstrate human-level reasoning or transformational creativity due to inherent algorithmic limitations, so instead, it proposes the use of affective AI to engage users in conversational collaboration, whereby users retain a sense of autonomy whilst gaining access to a virtual collaborative partner and tutor. The research reframes the role of AI in music-education contexts, and supports the position that AI should function as a collaborative supplement to human creativity – rather than a replacement.

Building on this framing, the study proposes the following research question: 'to what extent does human-affective AI verbal collaboration support aesthetic and educationally oriented music practice'? The AI system will be developed as a modular pipeline comprising speech-to-text, a large language model, and text-to-speech, with an embedded sentiment analysis module to introduce an affective component. The methodology will involve two participant groups differentiated by musical experience, who will test two iterations of the AI within a double-blind randomised controlled trial. Human-AI interaction will be empirically evaluated using a mixed-methods approach, including expert surveys to assess aesthetic quality.

It is anticipated that the findings will provide deductive evidence as to whether human-AI interactions offer significant benefits for practical music pedagogy and whether a correlation exists between a specialised affective music-AI and superior musical aesthetic quality. The project adheres to an ethical framework that promotes sustainable and responsible user–AI collaboration. The envisioned impact of this research is to reduce the exclusion of students who lack access to human tutors and to support musicians ’learning during unaccompanied practice. The introduction of this technology could enhance the experiences of novice, aspiring, and professional musicians across diverse educational contexts, while offering new insights into the understudied relationship between affective AI and the aesthetic dimensions of music practice. In the future, the research might also act as a catalyst for future investigations into affective AI across other artistic domains.

This presentation will begin by identifying gaps in the existing literature and articulating their significance. It will then introduce the proposed affective-AI prototype, outline the research methodology and guiding question, and examine the extent to which affective AI influences creative decision-making. Finally, it will present a new theoretical perspective on affective AI in music education and conclude by discussing broader implications for music, AI, and creativity.

Etemah, Eileojo Laura (Lee Ellie Music School).

Negotiating musical visibility on digital platforms through AI-assisted multimedia reconfiguration: artist-technology co-creativity

Music streaming platforms (MSPs) are characterized by hierarchical modus operandi that promote established music artists, leaving emerging talents marginalized. The algorithmic bias of these popularity-based platforms has spurred music artists to strategically delve into the creative use of the affordances of social media platforms and other generative AI models for content creation to negotiate visibility. The overarching aim is to redirect audiences towards music consumption on music streaming platforms. This study explores how platform practices employed by Nigerian music artists portray co-creativity facilitated by human-technology interactions that reconfigure musical performance, promotion and expression outside conventional industry norms.

This paper adopts the Actor-Network Theory (ANT) which frames creativity as a networked phenomenon arising from human and non-human actors, including platform features, templates, multimedia formats and music artists among others. This qualitative study employs digital ethnography and short-form musical content analysis on Facebook and TikTok, focusing on the transformation of a combination of multimedia formats aimed at audience retention. The study also employs autoethnography, drawing on the researcher's situated knowledge as a content creator, media scholar, ethnomusicologist and performing musician, informed by over two decades of embodied creative practice.

Findings show that musicians, in a bid to optimize their content for visibility on MSPs, employ innovative use of platform features, circumventing platform norms to create new visual and sonic possibilities which drive engagement on social media. Platform practices such as these produce novel process-based assemblages of musical expression that feature a range of media formats reconfigured via AI systems to generate a unified, high-impact social media post. The resulting short-form videos, usually under 15 seconds in duration, rapidly achieve virality, fostering popularity and engagement which can be redirected to MSPs. Digital platforms and generative AI systems thus emerge as agents of co-creativity that shape user engagement and musical outcomes.

This study contributes to platform studies, media studies and ethnomusicology by showing how multimedia content creation by music artists facilitates the reclamation of a degree of control over the visibility of their works on algorithmically-gated systems. It highlights the significance of polymedia practices in reconfiguring creative agency, music promotion, and performance in the music streaming era.

Erving, Carrie (Roc Nation School of Music, Long Island University: Brooklyn).

Passing the (autotuned) torch: Gen Z's adoption and transformation of the use of digital vocal effects processing.

The use of digital effects processing, and specifically real-time pitch correction (Auto-Tune), as a creative instrument is well-documented in contemporary scholarship (Duinker 2024, Provenzano 2018, Marshall 2018). Building upon the concept of 'digital signatures' (Brøvig and Danielsen 2016), this paper examines the evolving aesthetic trends within popular vocal music over the last five years.

It specifically investigates the "normalization" of the processed voice, taking stock of how emerging artists no longer view pitch correction as a post-production masking tool, but as a foundational element of their sonic identity. This research focuses on the current practices of Gen Z artists—digital natives who grew up in a landscape where the "autotuned" voice was the primary sonic reference of their Millennial predecessors.

Drawing from both current examples from popular artists and autoethnographic data and qualitative observations from the author's recent classroom experiences with undergraduate songwriting and voice students, this research identifies a significant shift in vocal-technological labor. While previous generations often used digital effects to bridge the gap between amateur and professional output, today's young rappers and pop vocalists are utilizing these tools to define new genre boundaries.

Critically, the paper explores a paradoxical trend: while many young artists continue to develop bespoke, highly-stylized usages of vocal processing, an increasing number of melodic rappers are voluntarily seeking formal voice lessons. This move suggests an effort to expand their physiological capabilities beyond a previous reliance on software, seeking a hybridity where the "unmediated" voice can coexist with digital manipulation. An analysis of the creative outputs of these student communities offers vital insights into the future of popular

music production. It concludes that the "passing of the torch" in popular vocal production techniques involves more than simple adoption; it is a sophisticated transformation of the human-computer relationship that redefines authenticity in both recorded and live performance contexts.

Fraley, Alyssa (Royal Birmingham Conservatoire).

Chromesthesia and Colour Palettes: an alternative perspective in music production.

As the recording industry evolves with the development of AI and advanced digital software, producers are increasingly seeking to maintain human elements of creativity in music production. By considering the elements of the music one produces in terms of colours, modelling after a chromesthetic colour-perception experience, we can approach plug-ins, virtual instruments, and sampling as “paints in a palette” for tone and texture. In this paper, I will provide a brief overview of chromesthesia and colour-music experiences, whilst pointing out a gap in the literature relating to chromesthesia’s effects in digital music production. To address this, I will present the results of an initial small-scale study conducted in a university setting to show the impact of emulated colour associations on mixing in a DAW.

Synaesthesia is typically a developmental mutation causing the crossing of senses through neural pathways that fail to myelinate properly, with one of the most prevalent subtypes being chromesthesia, where sounds cause the synesthete to see specific colours (Day, 2008, 2022). Much research has been done on performing musicians’ and composers’ colour associations and chromesthetic experience (see, e.g., Curwen, 2018; Glasser, 2021; Logan et al, 2016; Zamm, et al, 2013; Zdzinski et al, 2019,), but little consideration has been given to the advantages of chromesthesia and colour interaction for the music producer.

By emulating the synesthetic brain, producers have a metaphorical angle to consider in approaching creative production decisions. Lowell E. Kelly conducted a foundational study on artificial chromesthesia by conditioned responses between colours and individual notes, finding no long-term associations of synesthetic conditions were created (Kelly, 1934). However, if they devise personal colour-music associations, akin to Krohn’s historic survey of pseudo-synesthete musicians, I suggest that producers can consider tools within a DAW as artistic mediums to emulate a learned or pseudo-synesthetic experience as an alternative creative approach (Krohn, 1892).

In order to investigate this angle, I will conduct a pilot study amongst undergraduate music technology students at the Royal Birmingham Conservatoire exploring colour usage and customization of the stock plug-in EQ III-7 in Pro Tools. Initially, students will experiment with mixing using a customized colour-adaptable version of the plugin to fit with personalized auditory-colour associations. Students will then be divided into three groups to match a simple piano and vocal mix: one with the DAW and plugin set to greyscale, one with customizable colours for EQ and DAW GUI settings, and the final group with the default display settings of the DAW and EQ. Students will be encouraged to consider the tonal shifts created by EQing as colourations to the original sounds, and their mix results will be compared to the reference track’s mix parameters. Afterwards, they will complete a Likert scale survey about their experience with colour usage in Pro Tools and whether they find colour a helpful factor for mixing. Though limited in scale, this initial study will explore whether pseudo-chromesthesia colour-connection models can be used as a framework for creative digital music production as a gateway into further research.

Gordon, James (The Academy of Music and Sound).

The Creativity Engine: Making Music with Creativity Support Tools.

In a world where AI has begun to alter the landscape for composers, producers, and performers, finding ways to become more creative more often - without handing over the reins entirely to the machine - requires us to better understand, expand, interrogate, and disrupt the black box of our own creativity.

Creativity Support Tools (CSTs), imaginative aids, metacreation systems can help extend and amplify human creativity, they can provide ways to explore more distant areas of conceptual space, and they can interrupt how we engage with making music. As telescopes and microscopes enhance our ability to see, so CSTs enhance our ability to create and discover (Shneiderman 2002, p.22).

CSTs are 'where theories of creativity become manifest' (Wang & Nickerson 2017, p.2) and this ties them directly to Practice-as-Research (PaR) as our praxis is the 'imbrication of theory within practice' (Nelson 2022, p.19). As part of my original research, I synthesised a model of creativity from the literature and organised it into a tool to aid in the composition process. This was foundational to the portfolio of work I wrote for my PhD and has been part of my process ever since.

The Creativity Engine is a large, interconnected map of prompts, heuristics, and cards that can be traversed using chance, intuition, or more linearly like a flow chart. It can be used as a process guide to help overcome challenges during composition and production. It can also provide stimuli for the generation of new musical ideas or for the mutation and variation of existing ones, all the while encouraging associative activation.

My CST maps the process of music-making with four overarching stages, each with a divergent and convergent mode of its own. Being able to locate oneself in the often-labyrinthine act of creation - am I gathering preparatory materials? Defining limitations? Blindly bashing away at the piano trying to generate an idea? Writing variations? Tweaking plugins? Listening back and evaluating what I've recorded? - is incredibly useful, as is having suggestions for where to go next. Each of these modes has four phases that can guide the composer to a process or method of working that they may not have considered. Beyond this are prompts, heuristics, rubrics, and lists of concepts that can help get us unstuck.

This process is entirely self-directed rather than interactive per se but the use of The Creativity Engine can add a valuable noise to the systems a composer uses, a stochastic resonance that can be immensely valuable.

My presentation will cover:

- Creativity Support Tools
- CST synergy with Practice-as-Research
- The Creativity Engine
- Musical examples of how the CST was used

Gullö, Jan-Olof (Royal College of Music in Stockholm), Hans Gardemar (Royal College of Music in Stockholm), David Thyrén (Royal College of Music in Stockholm), Bo Westman (Royal College of Music in Stockholm) and Gary Bromham (Queen Mary University of London).

Revisiting Irving Berlin's Nine Rules for Writing Popular Songs in the Age of AI: Craft, Collaboration, and Emotional Impact.

This paper re-examines Irving Berlin's "Nine Rules for Writing Popular Songs," originally published in 'The American Magazine,' Volume 90, October 1920. It considers their relevance in an era when pop production increasingly incorporates artificial intelligence. The study explores how craft evolves when creativity is shared among humans, data, and machines. As part of the Searching for Sophia in Music Production project, a mixed-methods approach is employed: analysing Berlin's rules historically, conducting expert interviews with top producers, and evaluating current AI tools for composition, arrangement, vocal production, sound design, and mixing. The emotional impact of the analysed music is interpreted using Patrik Juslin's BRECVEMA mechanisms, focusing on aesthetic judgement. The study aligns with the OECD's definition of innovation, which emphasises that innovation involves not only generating new ideas but also implementing them in ways that are both original and practically useful. Findings suggest that Berlin's approach remains evident in today's music, with notable adaptations. His concept of "singability" persists through melodic models and tunings suited to a typical singer's vocal range. Techniques such as phoneme-level scoring, hook optimisation, and automatic speech recognition (ASR) enhance the memorability and clarity of titles and hooks. Lyrics crafted by today's AI systems are, in some ways, similar to Berlin's rules, as they need to be relatable and easy to sing, but not clearly facilitated by identity-aware writing that allows quick experimentation yet requires careful editing to maintain meaning. Emotional engagement, once achieved primarily through performance, now includes multimodal cues and performance-style adjustments to enrich timbre and dynamics. Originality is encouraged through generative models that promote creative exploration, while simplicity is maintained via motivic analysis and arrangement compression. Berlin's emphasis on structured workflows, version control, error management, and ethical practices remains relevant. The study also incorporates Jerome Bruner's cultural-psychological theories, emphasising multiple perspectives, AI as a tool extension rather than a replacement, songs as co-constructed artefacts, and process traces that make craft visible and teachable. Contemporary practices surpass Berlin's framework, with hooks appearing across melody and production, shifting emotional salience towards timbre, dynamics, and mix, especially as streaming analytics favour short intros and clear phonetics. These norms risk homogenisation and model bias, with practical judgement (phronēsis) serving as a key counterbalance to preserve distinctiveness. A hybrid paradigm is therefore proposed: Berlin's craft serves as a conceptual anchor, while human–machine collaboration redistributes creative agency across lyric writing, melodic design, timbral shaping, and mix architecture to guide emotional outcomes. Pedagogically, Berlin's principles are integrated with BRECVEMA-aligned labs, Bruner-informed perspectives, and dual metrics that evaluate craft and mechanisms within a Sophia-oriented framework combining technē (craft), epistēmē (knowledge), and phronēsis (judgement). This approach aims to produce music that reads as simple, sounds universal, and remains original without sacrificing human judgement.

Hepworth-Sawyer, Russ (York St John University).

Audio Mastering: Educating Beyond Tools and Rules.

Over the past seven years, I've researched the education and eminence of UK-based professional audio mastering engineers past and present. Through presentations at several Innovation In Music conferences and subsequently published within the Innovation In Music books (and elsewhere), this research, bit by bit, has

covered topics such as: 'the void'; gatekeeping; reflective practice; the importance of learning journeys, all relating to audio mastering. During these intervening years, the educational backdrop has not shifted and as such there remains a persistent disconnect between industrial needs and the training higher education provides for future mastering engineers.

In this final paper in the series, I conclude the findings of this study in one paper presentation, and explain that audio mastering, and the training to become professional is simply beyond tools and rules! The engineers' careers within this study span nearly 65 years and within that time there have, of course, been many changes, but also many things remain the same. It is upon these foundations that we can train robust and adaptable audio mastering engineers for the future. The paper presentation concludes with proposals for the future of contemporary audio mastering education within the realm of Higher Education and beyond.

Hermes, Kirsten (University of Westminster).

Beyond the Music Video: AI, Worldbuilding, and Audiovisual Music Practice.

Musicians increasingly operate within audiovisual ecosystems, where the production of visual materials is integral to musical practice. While music videos have historically functioned as discrete promotional artefacts tied to a single release, contemporary music practices increasingly demand continuous and modular forms of audiovisual production. Musicians now operate within platform-driven ecosystems such as Instagram, TikTok, YouTube and live-streaming environments that prioritise frequent updates, short-form visuals, and ongoing audience engagement over singular, canonical works (Vernallis, 2004; Korsgaard, 2017). This shift places additional pressure on musicians, who need to maintain a coherent audiovisual presence alongside musical production, often without access to specialised visual teams (Hermes, 2025). This paper explores how recent developments in AI-supported tools, 3D environments, and generative workflows enable musicians to move beyond the bounded format of the music video towards ongoing processes of audiovisual world-building.

The author reflects on emerging audiovisual workflows that combine music production with 3D tools and AI-assisted asset generation, particularly for contexts where visual environments are actively designed rather than simply recorded. These workflows enable musicians to develop stories, personae, and environments that can evolve across releases, performances, and platforms. Such approaches blur distinctions between composition, visual design, performance, and marketing.

This approach foregrounds questions of authorship, control, and creative coherence, particularly in relation to prompt-based systems and machine learning models that introduce stochastic or opaque processes into creative decision-making. Rather than positioning AI as a replacement for human creativity, the paper adopts a human-centred perspective (Shneiderman, 2022), examining how AI can be integrated as assistive, generative, and exploratory tools within musicians' existing practices. In this context, AI is framed not as an autonomous creative agent but as part of a heterogeneous creative infrastructure that supports ideation, variation, and iteration.

Drawing on several case studies, the paper adopts an exploratory stance, identifying design tensions and opportunities that arise when musicians engage with AI-supported worldbuilding. These include issues of speed versus depth, automation versus agency, and consistency versus variation within audiovisual identities. The paper argues for the value of flexible, modular workflows that leave space for experimentation and future technical development, including more advanced machine learning approaches. Ultimately, this paper positions audiovisual world-building as an emerging mode of musical practice, one that extends beyond the music video while remaining grounded in musicians' creative intentions, aesthetic judgement, and lived experience.

Hunter, Trevor (The University of Queensland), Eve Klein (The University of Queensland) and Stephen Viller (The University of Queensland).

Beyond Tools and Rules: Gesture, Listening, and Co-Creation in Performative Musical Ecologies.

Digital music technologies have greatly expanded the sonic and compositional possibilities available to musicians, yet many contemporary systems continue to position technology as a tool operated through abstract, screen-based interaction. This framing often weakens the role of the body in performance, obscures the relationship between gesture and sound, and challenges both performers' sense of agency and audiences' ability to interpret musical action. In response, this paper explores how interactive music systems might move beyond tools and rules to become collaborative partners in music-making - systems that listen, respond, and participate in shared creative processes.

The paper is grounded in the design and use of Soundscape, a large-scale interactive musical environment that I designed and developed as a research instrument for exploring embodied and collaborative music-making. Soundscape consists of a stretchable Lycra surface that responds to touch, pressure, and full-body movement, translating physical interaction into sound in real time. Gestures play a central role in the system: pushing, leaning, stretching, and sustained bodily contact function as expressive musical actions rather than symbolic commands. These gestures are intentionally visible and effortful, allowing sound production to be read not only by the performer, but also by co-performers and audiences. Rather than offering precise or screen-based control, the system encourages performers to listen, adapt, and respond - to the behaviour of the material surface, to the evolving sound, and to one another.

Across multiple performance contexts, musical outcomes emerged through continuous negotiation between bodies, material resistance, computational response, and the shared performance space. Performers frequently described the system as shaping their decisions rather than simply executing them, requiring attention, restraint, and mutual awareness. Gesture became a form of social communication, signalling intention, invitation, hesitation, or resistance, and supporting coordination and collective timing without explicit instruction. In this way, listening was foregrounded as an active, embodied practice distributed across people, materials, and technology.

Drawing on an ecological perspective informed by third-wave human-computer interaction, the paper proposes understanding interactive music systems as performative ecologies in which listening, embodiment, and negotiation are central to musical meaning. Comparative reflections across additional interactive music systems reinforce that agency in digital musical performance is not located solely in the performer or the system but emerges relationally through interaction. Tensions between control and surrender, individual expression and collective coordination, accessibility and expressive depth, and stability and unpredictability are treated not as design problems to be resolved, but as productive conditions for co-creative musical experience.

By framing gesture as both a musical and social act, this paper contributes a relational framework for thinking about interactive music design beyond instrumental utility. It offers insights for composers, designers, and researchers interested in developing music technologies that act not as tools to be mastered, but as partners in shared creative exploration.

Hvidtfeldt, Dan (Zealand academy of Technology and Business).

Creativity and performance pressure: How does AI reconfigure time, agency, and wellbeing in music-making?

Generative AI is increasingly framed as a co-creative partner in music-making: a system that proposes, varies, and accelerates musical possibilities. While AI-tools can facilitate and expand experimentation, they may also intensify performance-cultural demands for speed, productivity, and continuous improvement, and hence generate pressures that can undermine the conditions (e.g. temporal and affective) through which creativity emerges. This paper investigates how students at the Rhythmic Music Conservatory (RMC) in Copenhagen integrate generative AI into their creative processes, and how AI-mediated workflow acceleration can produce performance pressure potentially harmful to creative work.

The study builds on socio-material perspectives on creative practices (Gibson, 1979; Glăveanu, 2016; Hvidtfeldt, 2018, 2023; Hvidtfeldt & Tanggaard, 2018; Tanggaard, 2011, 2013, 2015), to examine how creative work is developing in intricate dialogs between people, tools, routines, and time. To theorize performance pressure as more than an individual intra-psychological state, we mobilize Ian Hacking's notion of looping effects(Hacking, 1996, 1999): classificatory expectations (e.g., being "AI-capable," producing faster, keeping up with an always-on creative economy) can reshape musicians' decisions and self-understandings, which in turn reproduce and stabilize the very norms that generated pressure.

Empirically, the paper is based on qualitative semi-structured interviews with RMC students across genres and production practices. Interviews focus on (1) where generative AI is used across stages of the workflow (ideation, arrangement, sound design, editing, finishing), (2) perceived shifts in listening and decision-making when options proliferate and iteration speeds up, (3) experiences of performance pressure and self-monitoring (related to i.e. tempo, output, and evaluation), and (4) strategies for protecting creative emergence, including constraints, slow/analogue practices, and selective tool refusal. Data will be analyzed thematically with attention to recurring socio-technical "loop patterns" linking tool affordances to norms of creative work.

The paper contributes an empirically grounded account of AI as a collaborator that also co-produces working conditions, and a conceptualization of performance pressure as a socio-technical looping effect, with implications for music education and co-creative design.

Jensen, Pål Erik (Kristiania University of Applied Sciences) and Tore Teigland (Kristiania University of Applied Sciences).

The Use of Artificial Intelligence in Popular Music Mixing.

Artificial Intelligence is changing the art and craftmanship of popular music production. AI influences the ways ideas are conceived and manifested – how we write melodies and lyrics – in what manner we record and put together the accompaniment – through the ways we edit, mix and master our music. In this study, AI is categorized into assisted and co-creative AI-tools. Assisted AI-tools are designed to automate, speed up, or improve technical, repetitive, or specific tasks (e.g., stem separation, signal processing, editing and organizing). Co-creative AI tools are designed to produce new content (e.g., generate ideas, lyrics, melodies, sounds, musical parts, or even full songs and soundscapes). This study also includes smart tools which share AI functionality but are not built using AI technology. While popular music throughout history in general has embraced new technology, there are great concerns with the emerging prominence of Artificial Intelligence in the music industry, as well as in the arts and cultural sectors in general. Central to the ongoing debate is ethical and copyright violations, loss of authenticity and emotional depth, economic disruption and job displacement,

cultural appropriation, homogenization, reduced creativity and more. Contrary to this, AI is also seen as a tool for increasing efficiency and sparking creativity, provided it is used as a complement to, rather than a replacement for human creativity. This presentation investigates the current prevalence of AI- and smart tools in popular music mixing by conducting semi-structured interviews with professional mixing engineers. The objective is to accumulate and categorize which AI- and smart tools they use, what these tools are used for, and how they influence their mixing process. In addition, the study aims to explore the mixing engineers' perspectives on the potential benefits and challenges with AI-tools as part of the mixing process - identifying commonalities while also treasuring interesting observations, allowing each mixing engineer's individual voice to come forward. Findings from these interviews will shed light on contemporary AI-practices and the use of smart tools in popular music mixing and inform the broader ongoing AI-debate with concrete data.

Kirson-Jones, Chloe (Kingston University).

Madison.exe: Co-Creating Voice, Identity, and Performance with an AI Vocal Double.

This presentation brings together critical reflection and musical examples from my practice-based PhD project, which centres on the creation and use of an AI-generated singing voice, named Madison, trained on my own vocal data. Through these examples, I explore how collaborating with a synthetic vocal "double" reframes authorship, embodiment, labour, and identity in contemporary popular music, approaching AI not as a passive tool but as an active creative partner within a distributed creative ecology.

Drawing on Donna Haraway's concept of becoming-with and Karen Barad's notion of intra-action, I conceptualise identity and voice as co-constituted through relational entanglement rather than as autonomous properties of either human performer or technological system. My AI voice and I do not collaborate as separate agents but emerge together through shared creative practice. Songwriting and performance emerge through an iterative human–machine feedback loop in which compositional decisions are shaped by the AI system's distinctive affordances and limitations. These technological characteristics actively inform melodic writing, lyrical articulation, arrangement and overall creativity producing a vocal practice that is relational rather than singular. In this model, voice becomes distributed across performer, dataset, algorithmic system, studio tools, and embodied audience perception.

The resulting musical outputs destabilise conventional distinctions between "real" and "artificial" expressivity and challenge dominant notions of vocal authenticity rooted in biological immediacy or unmediated presence. Instead, I propose a redefinition of authenticity as a processual and relational state emerging through agency-sharing, technological mediation, and creative intentionality. Madison thus performs a cyborg vocal identity: emotionally resonant yet synthetic, exposing the cultural fiction that authenticity resides solely in the organic voice.

The presentation interweaves live demonstrations of Madison with discussion of compositional methodology and performance design. Selected songs illustrate how familiar pop tropes are simultaneously amplified and estranged through overt technological mediation. An interactive performance-installation component extends this inquiry into audience participation: spectators can manipulate Madison's voice in real time using a PlayStation controller, modulating pitch, lyrics, timbre, and effects. This participatory framework dissolves performer–audience distinctions, producing a shifting ecology of agency between human singer, algorithmic voice model, and listening bodies.

I argue that AI vocal synthesis functions not as a site of automation but as a platform for collaborative creativity and speculative artistic practice. Madison.exe positions the synthetic voice as a metaphor for emerging futures

of music-making where identity is co-constructed with nonhuman partners, authorship becomes distributed, and authenticity is re-imagined as a networked, technologically mediated state of becoming.

Krogh, Mads (Aarhus University) and Peter Just Rasmussen (Aarhus University).

Catalyzing Change: Socio-Technological Experiments as Innovation in Music Education.

Institutionalized music education is shaped by a dense constellation of norms. These emerge not only from formal frameworks such as curricula, learning objectives, assessment formats, and degree structures, but also from informal expectations related to genre traditions, prior training, embodied skills, and the material organization of teaching spaces (instruments, ensemble formats, studio setups, etc.). While such configurations provide stability and continuity, they also risk fostering conservatism and a growing disconnection from contemporary artistic practices and developments in musical life. Accordingly, music education calls for sustained attention and situated approaches to innovation.

In this paper, we suggest heeding this call through socio-technological experiments; that is, deliberately designed pedagogical situations in which new digital tools are introduced not as neutral instruments, but as active participants in collective music-making. Drawing inspiration from new-materialist and relational perspectives, we conceptualize these experiments as catalytic arrangements: heterogeneous constellations of social relations, technological affordances, pedagogical frames, and embodied practices that are characterized by a degree of unpredictability and openness.

Innovation is understood not as discrete acts of invention, but as a processual modulation of affective relations, unfolding within such socio-technological configurations. When unfamiliar technologies are introduced into collective music making (e.g., arrangement and performance), established roles, hierarchies, and skill-based distinctions can be destabilized or 'opened'. Similarly, the social and collaborative nature of music-making counteracts the black-boxing tendencies often associated with automated or AI-driven production platforms. The resulting situations can be described as affective experiments, marked by heightened intensity, friction, curiosity, and renegotiation of agency — qualities we suggest are central to innovation in framed educational contexts.

Empirically, the paper reports on a series of workshops and short teaching modules integrated into longer courses at the BA programme in Musicology at Aarhus University and the Music Teacher Education programme at VIA University College, Aarhus between October 2025 and March 2026. These are contexts, where the need for aligning with contemporary artistic practices is imminent. Across these settings, digital tools were introduced as means of collective music-making. The study draws on participant observation (partly video documented), individual and collective reflection exercises embedded in the teaching activities, student logbooks, and follow-up interviews.

The presentation discusses preliminary findings from these experiments in relation to the proposed theoretical framework. We conclude by outlining perspectives for rethinking tertiary music education as a site for ongoing socio-technological and affective experimentation, where innovation emerges through relational openness rather than predefined aims.

Lindetorp, Hans (Kungl. Musikhögskolan), Jacob Westberg (West Mount Music AB) and Tobias Kalliokulju (Stockholms Kulturskola).

A Novel Approach to the Production and Distribution of Adaptive Music.

Music for video games often requires delivery in a modular format and a structure in which hundreds or more audio files must be assembled in real time during gameplay. Compared to traditional music production, where processes and formats are often well established, the game music industry relies on proprietary formats and often requires both music producers and other stakeholders to install and run specific software to share adaptive musical content during the development phase.

Adaptive music is a relatively young discipline and has garnered significant commercial interest from the rapidly growing gaming industry (Read, 2022). Adaptive music is crucial for the gaming experience, and earlier studies have identified essential strategies for achieving good results (McAlpin, Bett, & Scanlan, 2009). The production of adaptive music requires advanced technical skills (Kalliokulju, 2025) and often involves an iterative process of composition, recording, implementation, and testing to achieve a successful result; however, the lack of established standards and platforms often makes this process less efficient.

In this study, we aim to improve the ecology of adaptive music production. We develop bridges between established technologies, such as a Digital Audio Workstation, the AMAPP exporter plugin (Westberg, 2026), WAXML (Lindetorp, 2024) as the Web Audio Music platform, and a newly developed prototype delivery platform – WAXML Interactify (Lindetorp, 2025) – to create a smooth delivery path from composition to delivery. We evaluate the technology through a real-world case study in which live-recorded musicians produce adaptive music for a video game, collect data via an annotated portfolio (Gaver, 2012) during the design and development phases, and participate in stimulated recall interviews (Calderhead, 1981). The result provides important insights into how key technical solutions can contribute to a more open, accessible, and inclusive work environment for adaptive music producers.

Liu, Xuanzhi (Central Conservatory of Music), Xinting Hu (China Academy of Art) and Jiamian Wang (Zhejiang Conservatory of Music).

Phyllotaxis: Eco-Polyphony as an Indexical Sound Generation Practice.

This research proposes "Eco-Polyphony", a contemporary cross-sensory sound generation concept that explores the collaborative relationship between natural forms, technological translation, and human decision-making within the process of musical creation. In response to the theme "Music Beyond Tools and Rules," the project moves beyond treating ecology as a symbolic subject or aesthetic metaphor. Instead, it considers a single leaf as a minimal yet concrete ecological unit, allowing its visual structure to directly participate in sound generation through technical translation, thereby positioning non-human natural forms as generative agents within the musical process.

The methodology is based on an indexical translation mechanism from vision to data to sound. Morphological features of leaf structures are first extracted through vein scanning and image analysis, then transformed into computable parametric structures. Through a combination of image processing, parameter mapping, and real-time audio generation techniques, a multi-parameter-driven system produces temporally unfolding sound events within predefined sonic boundaries and generative constraints. This process is typically realized through the coordinated use of image analysis tools, data processing frameworks, parametric control systems, and digital audio platforms. Sound generation is therefore not purely random, but emerges dynamically from the interaction between ecological form, algorithmic logic, and human-defined parameter ranges.

Within this framework, Eco-Polyphony is not understood as polyphony in the traditional contrapuntal sense, but as a contemporary indexical and linear polyphonic practice. Sound processes generated from different leaf forms unfold independently yet concurrently over time, forming a decentralized sonic structure through spatialization, spectral distribution, and temporal displacement. Polyphony here does not arise from vertical control of voice-leading relationships, but from the coexistence of multiple sound processes that are each indexically derived from distinct ecological conditions.

This research can be presented both as a methodologically oriented academic study and as an expanded format such as a workshop or performative installation. Through cross-sensory interaction and collective listening, participants are invited to directly experience the generative mechanisms of Eco-Polyphony, offering a practice-based paradigm for contemporary music creation and research grounded in process, relationality, and co-existence.

Longo, Raffaele (Conservatory of Music "Luigi Cherubini" in Florence), Rashmi Chawla (University of Calabria) and Giancarlo Fortino (University of Calabria).

Negotiating Interpretative Trust and Embodied Dialogue in Human-Robot Musical Partnerships .

Orchestral practice has traditionally represented one of the most complex human interactions, where the conductor does not only indicate tempo, but through gesture, posture and presence they communicate emotion, intention, and meaning. Within the context of the HRC MUSIC4D project (https://music4-d.vercel.app/), this research explores a fundamental aesthetic question: Can a machine transcend its role as a technical instrument to become a genuine collaborative partner? The enriching experience of musical performance is based on a relational dimension. It depends on listening to one another, responding in real time, and sharing emotional intent.

This work explores a shift from understanding the robot as a technical instrument to engaging with it as a collaborative teammate, with interpretative trust at the center of this transition. We propose that technological innovation in music cannot disregard the emotional and relational dimension that constitutes the heart of shared musical experience. To support this vision, we build on the Tutti-Bot framework, a structured score–audio alignment system that functions as a foundational mechanism for listening. Rather than enforcing rigid correctness, Tutti-Bot allows the system to distinguish between technical execution errors and intentional expressive decisions (such as rubato, fermatas, and subtle tempo shaping). Through this, the robot develops a structural understanding of the performer’s intent, creating conditions for a more responsive and meaningful form of collaboration.

This vision is implemented by exploiting the Tutti-Bot framework as the system’s primary auditory mechanism. By housing this technical system within the robotic agent, we enable a high-precision alignment between the live audio and the attached score sheet. This allows the system to identify not just where the performance deviates from the notation, but to understand the structure of the musical work. To transcend the role of a technical instrument, this quantitative alignment is integrated with Large Language Models (LLMs). The LLM acts as the interpretive bridge, allowing the robot to function as a collaborative teammate that understands the musical concept and provides feedback on "where it went wrong" or where the interpretation succeeds.

By utilizing the LLM to articulate the relationship between the score and the performance, the system moves from a state of structural asymmetry toward authentic co-creation. The analysis concentrates on the qualitative aspects of this interaction: the progressive construction of a relationship of trust and the system's capacity to respond adaptively to musicians' interpretative nuances. This contribution proposes a critical reflection on how

technology might genuinely become a partner in sonic creation, suggesting that technological innovation in music cannot disregard the emotional and relational dimensions that constitute the heart of shared musical experience.

Lovett, Matthew (Bath Spa University).

Use Your Illusion – music generators, artificial creativity and the artificiality of affect.

At this stage in the development of AI music generators, industry and consumer concerns largely centre on a set of practical, economic and legal challenges. Emily M. Bender and Alex Hanna (2025) group these concerns under three headings:

First, consent: have artists given, or been asked to give, the consent for copyrighted works to be used in training datasets for AI music systems? Second, credit: artists should be credited when AI-generated music draws on their work. This is important not only for attribution, but also for transparency and provenance. As with other consumer goods, listeners increasingly expect to know what they are consuming, including whether music is human- or machine-produced. Third, compensation: when AI-generated tracks recombine existing musical material, the original creators of those elements should be fairly compensated.

These '3Cs' offer a clear framework for understanding the ethical implications of machine-generated music for both artists and audiences. However, this is not the end of the matter.

Beyond these concerns, the synthetic nature of AI generated music also prompts a deeper consideration of artificiality and illusion.

Not only is recorded and electronically produced music already a form of artifice, but more fundamentally – as I have argued through the concept of 'artificial creativity' (Lovett, 2023) – all creative acts are evidence of the constructed – which is to say, artificial – nature of human creativity itself. The distinction between human and machine production is less clear than we might think.

Moreover, the relationship between affective perception and conscious listening is complex. Humans routinely attribute meaning and emotional truth to experiences regardless of how they are produced. Unfortunately for advocates for the sanctity of human-produced content, there is no straightforward correlation between how a piece of music is made and the authenticity of a listener's experience.

This paper brings these parallel understandings of artificiality into dialogue to challenge the growing tendency to frame human-made music as authentic and machine-made music as synthetic deception. Ultimately, the aim is to use these illusions as a means of re-examining our assumptions about how music is made, heard and valued.

Majumder, Sanjay (Style tree) and Neal Anderson (Style tree).

Probabilistic Quality Assurance for Generative and Adaptive Audio Systems: Output-Space Validation, Long-Horizon Stability, and Perceptual Alignment.

Generative and adaptive audio systems increasingly underpin contemporary music production, interactive media, and immersive sound environments. Unlike traditional deterministic signal processing pipelines, these systems exhibit stochastic, non-repeatable behavior and evolve over extended temporal horizons, rendering conventional audio quality assurance (QA) methods insufficient. This paper introduces a probabilistic QA

framework designed specifically for generative and adaptive audio systems, grounded in output-space validation rather than deterministic signal verification.

We formalize audio quality as a probabilistic constraint satisfaction problem over perceptually relevant feature spaces, defining an acceptability region that captures bounded loudness, spectral structure, entropy, and temporal stability. System behavior is evaluated via Monte Carlo sampling, distributional divergence metrics, and long-horizon drift analysis, enabling estimation of confidence-bounded failure probabilities rather than binary pass/fail judgments. Bootstrap resampling is employed to compute statistically robust confidence intervals for all QA metrics, allowing risk-aware interpretation of system reliability.

The framework is evaluated across multiple real-world generative paradigms, including pretrained diffusion-based audio synthesis (AudioLDM and RAVE), autoregressive waveform models, and real-time adaptive synthesis systems. Minute-scale evaluations reveal slow instability modes and entropy collapse effects that are invisible to short-duration testing. Ablation studies demonstrate that temporal drift and distributional deviation are dominant predictors of perceptual failure, while traditional metrics such as loudness deviation and harmonic distortion show weak correlation.

A controlled listener study further validates the framework, showing strong correlation between probabilistic QA metrics and human acceptability ratings, outperforming conventional deterministic measures. Finally, we provide a theoretical analysis establishing convergence guarantees for output-space QA metrics under ergodic generative processes.

The proposed framework reframes audio QA as a problem of statistical reliability engineering rather than signal correctness. It provides a principled, extensible methodology for evaluating generative and adaptive audio systems, supporting emerging creative practices while enabling transparent, uncertainty-aware deployment in professional music and media production contexts.

Marrington, Mark (York St. John University).

Charting concepts of musical affordance across two generations of electronic musical instrument design: the case of the TB-303.

This paper offers a re-consideration of the Roland TB-303 bass line synthesizer in the light of ideas being explored as part of the author's recent research for a forthcoming monograph in the newly established Routledge 'Histories of Electronic Musical Instruments' series. In essence the focus of the paper, which models the book's approach, is on the relationship between instrument design and user creative practice considered at particular junctures across the lifetime of the TB-303 from its introduction in 1981 to its most recent reincarnations in hardware and software. The first part of the paper considers the TB-303 as an instrumental 'framework' through reflection on the Roland designers' initial conception of the unit and its imagined end-user. As its operation manual and advertising material indicated the TB-303 was intended to function as a substitute for a conventional bass instrument (using keys 'instead of strings') aimed at musicians who thought in terms of traditional song structures. During the first few years of the unit's life cycle, however, these paradigms were found to be persistently in tension with practitioner approaches, which for various reasons were situated in relation to instrumental concepts unrelated to ideas of 'the bass' or conventional musical structures. Here select examples from hip hop and the EDM literature will be discussed in reference to affordance theory and ideas deriving from SCOT (Social Construction of Technology) with a view to highlighting specific attributes of the relationship between the TB-303 and its users that elicited alternative creative approaches and redefined the instrument's design script.

Having established the general mode of enquiry the paper then moves to consider the TB-303's rejuvenation and afterlife from the 1990s, firstly in the light of the music software revolution, which elicited its reappearance (beginning with Propellerhead's Rebirth) as a skeuomorph in various plugins and sample libraries conceived in association with the DAW, and subsequently in more recent hardware replications of the instrument developed by companies such as Behringer, as well as Roland (the Boutique series). In this latter section the paper reflects on contemporary post-digital practitioners' attitudes towards these recent incarnations of the TB-303 and considers whether the new technological contexts in which they are situated have elicited either an adherence to, or an evolution beyond, the reconfigured design scripts presented by the first generation of its hardware-based practitioners.

Mata, Lola de la (University of Liverpool).

The Tacet Harp: Embracing my hearing difference.

Taking the ear as an actively anarchic being, one which asserts presence and holds artifacts - in the case of my left ear - chronic tinnitus; in this talk I will introduce how collaborating with my hearing difference led to new approaches in instrument design, music-making and embodied performance practices.

The Tacet Friction Harp, made in collaboration with percussion maker Matt Nolan in 2025, is tuned to my spontaneous otoacoustic emissions (SOAEs). These were recorded at the Hudspeth Lab of Sensory Neuroscience, Rockefeller University, NY, by the late James Hudspeth and Brian Fabella whose hearing research incorporates SOEAs and tracks nerve growth as they pursue to better understand the human hearing process.

Duetting with the sounds caught within the stereocilia and emerging from my cochlea as a 14 tone chord, was a decisive reshuffle of perceived and socially accepted hierarchical norms within hearing culture. With the tacit harp, I aspired to create an instrument that was truly my own, that would enable me to play in a tuning that resonated with my musical ear - literally, and through its towering architectural form, make visible a previously hidden sonic landscape. This new approach expanded not only my compositional approach but challenged me to become a performer.

Often mistaken as producing an electronic sound, the tacet harp is entirely acoustic. The aim is not to endure its sound but to participate and enhance the experience by tilting the head off-axis, a journey guided by the ears. Its perceived directness and loudness seems to defy its sometimes dizzying effects exposing the non-linearity of the ear, leading to auditory illusions or perceived 'ear tones', a term coined by Maryanne Amacher describing psychoacoustic phenomena related to difference and combination tones.

Exploring with tactility its individual components including but not limited to, its tuned aluminium rods, opens up space for free play. One that can be solitary, or as a duet with a dancer as I have developed for FAT OUT Fest in Salford (11/25). While the performance contexts will undoubtedly expand, I will experiment further with an exhibition format at Sonorities Festival (04/26), where the harp will take the form of a sculpture installation open to audience interaction.

In addition to vibrating air, my practice approaches hearing and listening through visual and tactile means without diverging from surround experiences or assembly. Approaching difference laterally, rooted in disability and aural diversity studies, I propose we choose to devise for audiences beyond the pre-conceived 'normal listener' with 'perfect' hearing, who I would argue does not exist, in an effort to move toward a taboo-less, more accessible human listening.

Moralis, Christos (BBC Studios; Independent researcher (University of West London)).

Performable Recordings: Co-Creative Harmonic Alignment for Electronic Percussive Playback in Real Time.

Interactive music systems have long been understood as agents that listen and respond within performance, contributing to an emergent musical dialogue rather than functioning solely as passive tools (Rowe, 1993). More recent perspectives on co-creative music systems emphasise reciprocal influence between human and machine, in which systems propose musically meaningful directions while the performer retains authorship and control (Thelle & Wærstad, 2023). Within electronic music production and live performance, a persistent challenge is that percussive elements, particularly low-frequency kick components and resonant snares and toms, can conflict with basslines and shifting harmonic context, often requiring manual preparation, routing workarounds, or fixed-pitch compromises.

Building on the author's earlier practice-based research on 'Performable Recordings' (Moralis, 2019), this paper presents a newly developed software instrument that extends chord-aware percussive tuning into an integrated, instrument-like system for contemporary production and performance contexts. Rather than treating percussive pitch as fixed, the instrument continually establishes a momentary tonal centre from incoming harmonic cues and guides percussive pitch choices towards musically salient chord tones. In Moore's (2002) terms, this can be read as supporting first-person authenticity by helping performers sustain an intended expressive stance, ensuring that resonant drum components remain aligned with harmonic direction rather than producing unintended clashes that dilute musical intention. The design also foregrounds timing stability in real-time use, supporting tight rhythmic articulation while coordinating pitch choices across multiple drum voices so the kit reads as a coherent harmonic texture rather than collapsing into redundant unison emphasis. This can be interpreted as contributing to third-person authenticity by strengthening the credibility of execution, namely the convincing realisation of stylistic and arrangement intentions under real-time constraints.

To support expressive resonance without compromising timbral continuity under repeated triggering, the instrument incorporates phase-coherent resonant tail extension, in which a sampled transient is smoothly continued into a tonal tail with phase alignment at the transition, reducing perceptual discontinuities while preserving harmonic alignment. The presentation will outline the interaction model, demonstrate production and performance scenarios, and discuss how real-time harmonic constraint and phase-coherent tail extension reposition the drum instrument as a collaborative partner within the creative decision loop.

Nardi, Carlo (Free University of Bozen-Bolzano).

Metaphors as creative labour: Making meaning of AI in the studio.

Interaction with technology is intrinsic to the record production process, to the extent that the history of the latter has often been chronicled as a by-product of advances in sound recording, processing, storing and distribution. Although some commentators suggest that the emergence of generative AI calls for a paradigm shift in our view of both technology and technology-mediated cultural production, it seems to be only the latest chapter in that story.

In fact, public debate has often treated new technologies as exogenous forces, whose inexorable spread is matched only by the inevitability of their predicted effect. At the other end of the spectrum, creativity is considered one of the last bastions of human nature, often ignoring the way in which our understanding and definition of creativity itself is intertwined with technological development and the socioeconomic system in

which both are embedded. Although many concerns about AI are fully justified, particularly those relating to its monopolisation and environmental unsustainability in its current form, panic is unlikely to contribute anything useful to the critical debate.

Moreover, it should be noted that we are far from reaching a shared definition of terms such as intelligence, creativity and creative work. Rather than aiming for generalizations, with the risk of abstracting from the reality that shapes these concepts, this presentation will draw on ethnographic data to show how creativity is understood and performed in a specific context, namely mixing and mastering studios in Northern Italy. It will start from the consideration that the mutual relationships between human beings and non-human systems in music are based on discursive strategies to enable communication between actors from different fields of expertise. Creativity, I argue, can be understood, rather than as a personal quality, as the set of meaningful interconnections that occur between the actors involved in a production process.

More specifically, the paper will draw on sociological (Weber, Chang, Reckwitz, Stahl, Taylor) and philosophical (Benjamin, Anders, Williams) theories related to technology and creativity to investigate the discourse about the involvement of AI in the production chain. Next, it will will analyse how these metaphors reflect consonant or contrasting aesthetic values, understandings of roles, or broader worldviews. The results of the study will hopefully contribute to the debate on how to study AI in record production.

Pandis, Adrianos (University of West London).

Attuning to the infrathin: understanding shifts in perception, purpose and identity in life-after-cancer through therapy-infused autoethnographic songwriting.

My practice research focuses on developing a safe post-illness songwriting practice through the development of a music therapy-infused mixed media autoethnography. Songs emerge as points of definite expression of a reflexive triangulation system. Creative interactions with process recordings of music therapy and songwriting sessions further enable reflexivity through the collaboration with the non-human, making the relationship crucial to the therapeutic, autoethnographic and artistic processes.

As a young adult cancer sufferer, I saw my creativity abruptly disrupted. Songwriting processes and techniques, and the artistic language I had developed for and through my practice up to the point of my diagnosis lost their applicability post-recovery. Contrary to established narratives of the suffering artist, who finds their true artistic voice through physical and emotional pain, unsupervised attempts to write songs about my experience with cancer were frustrating and evidenced risks of retraumatisation.

In my current research, I have been developing a music therapy-infused songwriting method through a system of reflexive triangulation. The points of this system are: a music therapist who mainly uses songwriting in their clinical practice, the academic supervisor and myself. Themes emerging from therapeutic and philosophical discussions are explored through songwriting, autoethnographic performative writing, journaling and autoethnographic interviews. This process aims at a deeper understanding of the events and circumstances of my illness, and of the consecutive shifts in perception, purpose and identity.

But how can attuning to ‘the most minute of intervals’, Marcel Duchamp’s ‘infrathin’, inform this process?

Whitehead’s concept of negative prehension refers to all potentialities which had to be eliminated for the dominant experience to actualise with consistency. Elimination, however, is participation, and said potentialities remain in the background, always affecting what came to be. They co-exist as the ‘negative’ of the photograph. In the infrathin, the background is momentarily foregrounded through felt intensities and the

multiplicity of everything reveals itself. There, by diving into the potentiality of alternative stories I have begun understanding my own.

My creative process facilitates this attunement while mitigating the risks of retraumatisation. Songs emerge as points of definite expression of this process for each theme, gradually building a re-storied narrative of my cancer in the form of a concept album. This process supports my psychological and philosophical development as a storyteller, leading at once to a safer and more meaningful songwriting practice.

At the Innovation In Music 2026 Conference, I intend to present my music therapy-infused songwriting method and reflexive triangulation system through the sharing of creative interactions with process recordings, along with footage and sonic artifacts. Using examples of previous work around the theme of my illness, I aim to demonstrate how this process has been informing my practice and supporting my wellbeing.

Paterson, Justin (University of West London).

AI2AI – AI pair programming towards policy-space control: a harmony-aware MIDI-channel multiplexer with captured & bred XY trajectories.

Contemporary software-development practice is increasingly shaped by AI pair‑programming, where complex systems can be created using co-authored human intent and machine inference. This collaboration has both accelerated development for the professional but also provided a syntax-naïve entry point for those without advanced coding skills. Within the music-production landscape, many tools already let performers draw or automate XY curves, map gestures to control streams, or apply machine learning to generate musical material. Yet these strands rarely converge into a coherent architecture for per‑note MIDI-channel routing – one that treats controller motion not as mere automation data but as a first‑class AI-policy signal driving how a single MIDI stream is multiplexed to multiple destinations, each associated with a different timbre (instrument) to form complex musical arrangements.

This presentation addresses that gap with MorphMux, an AI-pair-programmed real‑time, harmony‑aware MIDI-channel multiplexer designed for studio use and potentially also live performance. The system interprets an incoming single‑channel MIDI sequence/performance and assigns each new note to a destination channel within a user‑defined range. Crucially, assignment decisions are made inside a morphable heterogenous policy space whose four ‘corners’ represent complementary AI- (non LLM) inference strategies: a conservative rule set, a Bayesian estimator, an intent‑transformative mapping, and a Markov/state model – each of which develop the input in different ways. The user interface is centred around a front‑panel XY pad which continuously blends these strategies via convex weighting with smoothing, allowing performers to navigate a continuum of interpretive behaviours and ‘conduct’ the hybrid arrangement in real time.

Extending beyond conventional XY automation, MorphMux also introduces controller‑trajectory presets: the system can record smoothed XY paths over user‑specified time-windows and store them as reusable presets that can be replayed to drive policy blending across new musical contexts. A non‑real‑time 'gesture lab' then supports breeding new trajectories from recorded ones using lightweight genetic and Markovian methods, yielding novel but bounded control behaviours that remain compatible with real‑time constraints. To keep the system musically plausible across changing chord sequences, a 'harmony guard' captures a progression‑agnostic pitch‑class profile during ingestion and moderates controller‑induced policy swings (without altering pitches), ensuring that expressive navigation of the policy space does not undermine harmonic integrity.

Finally, a 'mapping table' offers a guidance layer: users can assign intended roles (e.g., bass, pad, lead) to channels, while the engine determines live role-suggestions derived from routing statistics. When several channels share a role, role‑aware round‑robin distributes notes to balance the note cluster within the arrangement, without fragmenting phrases.

Together, these elements articulate a novel paradigm that bridges the gap between generic gesture control and musically informed, progression‑agnostic MIDI-channel multiplexing. The presentation also considers the pair-programming context, workflow issues and a demonstration of MorphMux in a number of settings.

AI is used to develop AI – AI2AI.

Peacock, Liam (University of Edinburgh).

Inaudible Complexity and System-mediated scoring in Marvel's Spider-Man.

Contemporary AAA video-game scoring relies on adaptive systems that function as co-creative partners in shaping what is eventually heard. Yet these systems often produce undesirably visible complexity, bringing the audio system to the players focus. This paper examines the creative relationship between tools like Audiokinetic's Wwise and the video game composer, seeking to understand, through analysis of Insomniac Game's Marvel's Spider-Man's score (Insomniac Games, 2018; Paesano, 2018), the structures and systems at play that produce the game's interactive and dynamic score. Through gameplay capture analysis, analytical play (Summers, 2016, pp 36), and methodological inference, this paper examines the priority hierarchies and interactive mix systems in Marvel's Spider-Man (Insomniac Games, 2016). This title demonstrably prioritises sound effects and dialogue over musical and coherent presentation of video game scores, preserving function and obscuring musical structures, coherence, and clarity, resulting in perceptually audible systems design. These analytical methods demonstrate how middleware participates in the shaping, function, form, texture, orchestration, and continuity during play challenging traditional ontologies of musical works and ownership. This paper also posits that the relationship between composer and middleware in some contemporary AAA games requires exploration and strengthening. Existing Ludomusicological work has addressed modular structures in video games (Medina-Gray, 2019), including consideration of smoothness, immersion (Van Elferen, 2016), a musical literacy (Van Elferen, 2016). However, little research has focused on the creative and industrial implications of middleware as a creative partner in the video game scoring and implementation workflow. This study positions middleware as not just a tool used to implement music dynamically and interactively, but as a partner that should be used to influence musical aesthetic, structure, design, and perception. This analysis further identifies missed opportunities for more comprehensive and thoughtful music systems and design, suggesting alternative implementation strategies such as hierarchical instrument ducking, timbral segmentation, and loop-level form preservation that could enable more coherent adaptive scoring without gameplay intelligibility. This paper argues that adaptive music in contemporary video games represents a system-mediated musical practice in which listener perception, authorship, and compositional strategy are negotiated between human and non-human actors with varying degrees of success. This reframing invites further research into workflows, pedagogy, and industry practice, particularly as game scoring and the player's musical literacy continues to push expectations of dynamic systems and the responsive, co-creative nature of music design rather than artistic composition.

Peclová, Daniela (Janáček Academy of Performing Arts).

From Videoconferencing to Musical Interaction: Rethinking Platforms for Online Music Education.

Digital tools and platforms increasingly shape contemporary musical practice, not only in production and distribution but also in music education and remote collaboration. Despite the widespread adoption of online music teaching, current practices largely rely on generic communication platforms whose design does not adequately accommodate the specific demands of musical interaction, including temporal precision, sonic detail, and rapid pedagogical feedback. This presentation introduces mini MVTP and MVTP as platforms for low-latency audio-visual streaming, developed to address these limitations and to explore how domain-specific technologies may reshape the conditions of online instrumental and vocal education.

The presentation focuses on the integration of technological design with pedagogical reflection and research-informed evaluation. It outlines how empirical inquiry into the experiences and needs of music students and teachers can inform functional principles for low-latency streaming platforms, such as perceived immediacy of interaction, stable and faithful sound transmission, support for fast pedagogical feedback loops (instruction–performance–correction), and reduced cognitive load in system operation. Rather than presenting MVTP as a finalized product, the platform is framed as a research and development environment that enables systematic experimentation with different forms of online musical interaction and teaching practice.

A key part of the presentation introduces a set of functional evaluation criteria and a limited number of realistic teaching scenarios designed for experimental verification of home-based online music education using mini MVTP. These scenarios reflect common pedagogical situations, including individual lessons, rhythm-based exercises, and fine-grained intonation and articulation work, and allow for structured comparison between low-latency streaming solutions and widely used generic platforms. The proposed framework supports the assessment of both technical aspects (such as interaction latency and transmission stability) and pedagogical qualities, including interaction fluency, clarity of instruction, continuity of attention, and the teacher's ability to respond within musically meaningful timeframes.

The presentation also addresses broader implications of adopting specialized low-latency streaming platforms in music education, with particular attention to inclusion and accessibility. In the context of the conference, the presentation contributes to discussions on innovation in music technology, music research, and co-creation by demonstrating how moving beyond generic communication tools toward purpose-built low-latency streaming platforms can challenge established technological and pedagogical conventions and support more musically grounded, inclusive, and sustainable forms of online practice.

Polyakov, Egor (University of Music FRANZ LISZT Weimar) and Pia Steuck (University of Music FRANZ LISZT Weimar).

Beyond the Black Box: Democratizing Musical Analysis and Creative Workflows via LLM-Empowered Cloud-Based Jupyter Setups.

In recent years, the Python ecosystem has matured into a powerful environment for Music Information Retrieval (MIR) and computational musicology, offering deep, scientifically grounded methods for signal and data processing. Although Python-based audio workflows are predominantly offline—lacking real-time audio editing and relying primarily on text-based interaction—these constraints also enable an alternative paradigm for musical analysis and electroacoustic creation that emphasizes transparency, reproducibility, and platform independence.

This paper investigates how cloud-based Jupyter Notebook environments can emulate established creative practice chains, ranging from symbolic, piano-roll-based texture manipulation to spectral sound design, while remaining fully browser-based and independent of local hardware constraints. A central challenge of such workflows is their high entry barrier for non-programmers. To address this, we explore the use of general-purpose Large Language Models (LLMs) as an optional accessibility layer that supports navigation of complex Python libraries and workflows through natural-language interaction.

The approach is demonstrated through a unified workflow integrating four specialized Python toolboxes—CAMAT, AudioSpylt, beat_it, and FFTimbre—orchestrated within cloud infrastructures such as Google Colab and Jupyter4NFDI. Together, these tools form a continuous feedback loop between analysis and creation across four domains: symbolic music analysis, spectral decomposition, rhythmic texture and micro-timing extraction, and creative resynthesis via evolutionary optimization.

The conference presentation will showcase concrete interactions with these tools inside Jupyter notebooks, including guided analyses, data-driven sound transformations, and LLM-assisted exploration of analytical and creative practices. By foregrounding hands-on notebook-based interaction, the presentation demonstrates how Jupyter workflows can democratize access to advanced symbolic and spectral methodologies for students, researchers, and artists, while remaining grounded in established Python-based scientific practices, including libraries such as NumPy, SciPy, Pandas, and Librosa.

Portillo, Cesar Salazar (University of West London).

The New Narrative: Redefining VR Accessibility for Visually Impaired Audiences through Assistive Audio-Haptics Approaches.

The rapid evolution of Virtual Reality has redefined the landscape of digital storytelling, yet its inherent dependence on high-fidelity visual output continues to create significant barriers for blind and partially sighted audiences. Traditional accessibility methods, such as audio description, frequently struggle to keep pace with the non-linear nature of virtual environments, resulting in an "accessibility chasm" where 2D solutions fail to support non-visual navigation. Furthermore, while individual modalities like haptics or spatial audio are often used for sensory substitution, they frequently lack the sensory synthesis required to merge these inputs into a cohesive, immersive experience. Without this synergy, these tools provide fragmented information about the world but may fail to replicate the heart of the VR experience: deep narrative immersion.

This research addresses these limitations through the development of "Description Spheres," interactive virtual objects embedded within the environment that serve as multi-sensory hubs. Developed through a user-centred design approach, the system was informed by the insights and lived experiences of visually impaired gamers from the Royal National Institute of Blind People (RNIB) in the U.K. Their expertise in non-visual navigation helped shape a dynamic, exploratory model that integrates spatialized audio, localized haptics, and experimental audio description. This approach is practically implemented through the adaptation of The Remedy, an award-winning VR production by Meta, which serves as a flagship case study for sensory synthesis in inclusive design.

In this setup, The Remedy is transformed from a purely visual cinematic piece into a robust, non-visual sensory ecosystem. Within this environment, 3D-sound and predictable audio cues provide seamless navigation, while haptic feedback serves as a critical non-auditory anchor for tactile confirmation and attentional focus. This experience is further elevated by an innovative audio description layer that goes beyond mere narration, providing a rich tapestry of technical environmental detail and deep, character-driven descriptions that guide

the audience's emotional journey. By presenting this adapted version of the work, the research provides a scalable blueprint for translating complex visual-spatial data into intuitive, multi-sensory experiences. This project ultimately advocates for a paradigm shift in VR production, moving toward a model where accessibility-driven tools are treated as primary creative drivers for universal design.

Portovedo, Henrique (INET MD).

Faces: Exploring Augmented Musical Performance in Post-Humanism Contexts.

Faces is an artistic research project developed over the past nine years around the complete works for saxophone and electronics by Michael Edwards. Initiated in 2016 as a recording endeavor, the project has evolved into an investigation of how instrumental performance co-authors contemporary musical creation in technologically mediated contexts. Edwards's music exposes a charged dialogue between performer and algorithm, gesture and synthesis, breath and code—an ecosystem where the saxophone's acoustic resistance meets digital transformation.

Central to these works is a rethinking of the musical material. Rather than an ideal to be flawlessly realized, the score becomes a system to push against, generating expressive, often unstable performance situations. Although the notation is not complex in the sense of the so-called New Complexity, and nothing in it is aleatoric or random, one or two parameters—most often speed—are pushed to extremes. The performer is compelled to skim, react, and even improvise in order to keep pace, producing an unusual tension and energy. This pressure opens the door to instrumental sounds that are unimaginable or unnotatable, revealing the saxophone not only as a familiar musical instrument but as an extended technological prosthesis of the human vocal apparatus and, fundamentally, as a resonating tube.

Guided by post-humanist principles of distributed cognition, hybridity, and mutation, Faces situates augmented musical performance within the broader landscape of algorithmic culture. In a world where the human is only one agent in networks of computation, the project asks: What counts as human in contemporary augmented performance? Here, creative practice becomes an adaptive negotiation between embodied technique and technological systems—one in which the artistic result emerges from the shifting relational field between human and non-human actors.

This post-humanist framework also reconfigures the ethics of authorship in artistic research. Authorship becomes distributed and relational, no longer a sovereign act but a practice of co-responsibility among performers, composers, technologies, and material worlds.

Reflecting on this long-term engagement, Faces maps the formation of an artistic and research identity shaped through dialogue with composer, machines, and sound itself. This research performance will include excerpts from the works that constitute the project, demonstrating how these performance strategies open new expressive possibilities within post-humanist artistic practice.

Ramström, Johan (Royal College of Music Stockholm) and Jan-Olof Gullö (Royal College of Music Stockholm).

The developed 5W Method for konceptualising and communication in film scoring and music production.

This project investigates how Earle Hagen's Five Questions Model, initially developed for film scoring, can be creatively adapted as a communication tool in Filmscoring as well as other types of Music production . The

original model poses the following questions: 1. WHY should there be music? 2. WHAT kind of music? 3. WHERE is music needed? 4. WHEN does the music begin and end? and 5. WHO performs the music? This framework offers a structured approach to conceptualizing film music. By applying the 5W model to the production of entire films, this project has refined and enhanced the model to facilitate effective communication among filmmakers, including directors, composers, and sound engineers, while also expanding its usefulness in educational settings. Improvements to the model include merging WHEN and WHERE into a single question and introducing WHAT'S (focused on narrative perspectives), thereby increasing the model's effectiveness. The revised 5W model has proven highly effective in helping higher education students in music production and film scoring understand the collaborative nature of filmmaking, emphasizing that music is a vital part of the film language rather than existing in isolation. While this approach shows significant promise in stimulating creativity and providing structure, further research is required to evaluate its broader impact on student outcomes and professional practice. The revised 5W model successfully combines a practical methodology with artistic freedom, establishing itself as a valuable tool for conceptualizing and creating film music. This has proven particularly beneficial in this project, and the revised 5W model has also been applicable to other types of music production, particularly in collaborations with media forms such as game music. Additionally, in genres such as pop music created for the charts, the revised 5W model can also be utilized to streamline the production process and clarify musical elements or serve as an analytical tool

Randall, William (University of Jyväskylä).

Emotion Regulation through Music Listening: Experience Sampling with the MuPsych app.

Adaptive emotion regulation is crucial to psychological well-being, while dysregulation is central to the development of several mental disorders. Everyday music listening serves as an easily-accessible and flexible regulation resource, allowing listeners to alter their emotions in any context. Understanding how people regulate their emotions with music - and when this is either adaptive or maladaptive - could therefore have broad implications for supporting mental health. Previous research on this important topic has relied heavily on surveys and experiments, which are severely limited by recall biases and a lack of ecological validity. These limitations are addressed by the Experience Sampling Method (ESM), which presents brief questionnaires to participants during their everyday lives. While ESM has been used in previous studies of music and emotion, all of these have utilized randomly-timed samples, rather than capturing listening experiences in the moment they occur. This changed with MuPsych, an innovative mobile app which utilizes event-based ESM to measure real-time changes in emotional states during everyday listening. The app presents questions to participants at the exact moment they start listening to music on their phone, and then at two more time-points during the listening experience. This allows for the accurate and ecologically-valid measurement of emotional responses to music. Data from these music reports are combined with individual variables through a battery of psychological surveys presented within the app. To complement these sources of self-report data, the app can also collect track and artist data, physiological data from wearable devices, and weather data. Results from a selection of studies using the MuPsych app will be presented at InMusic26. One study investigated the changes in intensity of discrete felt emotion states during music listening, and how these are predicted by music, context, and listener variables. Another investigated the effectiveness of the various regulation strategies used by young people during music listening. The main purpose of research using the MuPsych app has been to develop a comprehensive model of how music influences emotional states, through a complex interaction of music, listener, and context variables. The app is also available to all music researchers, as a tool to investigate various phenomena related to the listening experience, through custom studies. In the future, the data

collected by MuPsych will be used to develop a music recommender, which will create playlists based on listener mood, activity, and reason for listening, while supporting emotional health and well-being.

Redhead, Tracy (University of Western Australia) and Florian Thalmann (Independent Researcher).

Songwriting as a system: The Semantic machine - a song that changes with the world around you.

Recorded songs are traditionally defined by repetition: one structure, one set of lyrics, one definitive version. This paper proposes an alternative model of songwriting through Transmutable Music, an overarching term for music that can change in response to data, including contextual information (such as weather, time, or location), user interaction, system behaviour, and other computational inputs. Transmutable Music creates new listening experiences across adaptive, generative, and interactive formats in many genres and applications, with a strong foundation in adaptive music in video games. This paper focuses on one domain within that framework: song-based transmutable composition, in which a work is authored not as a single linear arrangement, but as a composed form that can produce multiple musical and lyrical instantiations over time while preserving artistic identity.

The paper presents the song, The Semantic Machine, a mobile-app that generates different versions of the same authored work according to the listener's location, time of day, and weather. Developed over eight years, this work is not an infinite generator of unrelated outputs. Instead, the composition is built through layering and blending: musical layers, vocal treatments, and lyrical variants are designed to work in any combination. As layers enter, fade, and rebalance, the arrangement, mix, timbre, and narrative perspective shift, producing different emotional and semantic readings of the same song. In this model, songwriting involves composing not only musical material, but also the rules of transformation: how verse–chorus functions can change, how lyrical meaning is recontextualised, and how identity persists across variation.

Building on traditions of non-linear form in 20th-century composition, such as modularity and chance-based processes, this paper reframes experimental approaches to form within contemporary songwriting, enabling popular song to operate as a dynamic, context-aware composition. Framed as a speculative artwork, The Semantic Machine stages a fictional machine that "knows" the listener through data, drawing attention to algorithmic personalisation and surveillance capitalism. Nostalgic 3D visuals extend the conceptual world of the work, while the lyrics are sung from multiple perspectives that foreground the ethics of personal data access. The piece is also designed as a slow artwork: its form is not grasped in a single encounter, but emerges through repeated listening as patterns, pathways, and boundaries of variation become perceptible.

Drawing on the compositional framework outlined in Redhead's book Interactive Technologies and Music Making: Transmutable Music (Routledge, 2024), the paper concludes by applying an evaluation model for transmutable works, proposing criteria for assessing coherence, identity, and meaning across variability and transmutability. Together, the work and framework propose transmutable songwriting as a rigorous creative practice—redefining the recorded song as plural, context-aware, and structurally alive.

Rottgeri, André (Independent Researcher)

"Shine that Sound on me" - From Sound to Light to AI in Popular Music Lighting

This paper deals with live-production and performance aspects of the conference topic. It is exploring the relationships between human and non-human interactions by addressing tools which listen (e.g. early "Sound to Light") or interact and co-create (e.g. modern AI) at Popular Music events. As Sound & Light systems enforce

the connections between artists and their fans, technical tools for performance enhancement in this area also shape innovations within the music industry in general.

Therefore, this paper briefly outlines the historic development of show lighting with special focus on the relationships between I. Music, II. Humans (Designer / Operator) and non-human systems (lighting consoles, software, AI etc.) and their impacts on the music-performance in general, transforming sound signals into the music performance on the visual level.

Primarily, the research is based on a typology, which constitutes the following five categories that deal with different levels of interaction between humans and non-human systems.

1. Human Performance - Live
The operator transforms sound inputs (e.g. tapping beats) directly into the console without the assistance of software or AI. Leaving room for individual interpretations of music on the visual level.

2. Human Performance - Software Supported
The operator transforms sound inputs with the assistance of software on his console into light. Within this category we can find software assisted shows (e.g. with a programmed “Chaser”), but also fully programmed shows, witch leave no room for spontaneous interpretation.

3. Human Performance - IA Supported
Within this category, the Operator transforms sound inputs with the assistance of an AI system on his console into light signals.

4. Non-Human Performance – Traditional Sound to Light
This category covers traditional systems, which use a Sound to Light interface and therefore do not require an operator.

5. Non-Human Performance - Stand Alone AI
Here, Sound to Light applications are mediated merely by algorithms and AI systems without any human assistance during the performance.

Overall, this research is based on personal experiences as an Operator during the 1990s (e.g. at a 563 seat Theatre) and freelance-operator. Furthermore, by working for Lightpower Schowtechnik GmbH (Paderborn) and catching up annually with recent developments in the field (e.g. at Musikmesse / Prolight & Sound, Frankfurt am Main) since 1995. Academically, the topic could partly also be covered by publishing and teaching (see references below). In addition, the topic will be updated for the 2026 conference, by interviewing former colleagues at Lightpower Showtechnik GmbH and Clay Paky Germany (Paderborn).

Rowley, Caitlin (Royal Holloway, University of London).

Picking up the pieces: How AI failure can support intermittent music coding.

In 2024, I began experimenting with AI to try to overcome the challenges of working intermittently with Pure Data (an open-source visual programming language for music). As an infrequent coder, programming is characterised by difficulties in accessing my existing knowledge. Time away from a project results in struggling to remember object names, how to connect them, or even what my earlier code actually does. Previously, such issues could only be resolved through frustrating Google searches and trawling through help files.

While LLMs excel at coding text-based programming languages, they currently struggle to produce functional Pure Data patches, despite often providing accurate and detailed information on the language. However, my

autoethnographic research suggests that this limitation can have pedagogical benefits for learning the language, and that interacting with AI as a collaborative partner focused on conversation more than code production can ease and accelerate the transition back to coding after an absence. While debugging the serious errors often present in the LLM's patches, I have found myself needing to exercise my memory to identify problems - tracing patch logic, interpreting connections and testing my recall of how individual elements work. Engaging Claude.ai (my preferred LLM for this project) in conversation, we work through the issues in both the code and my understanding together to work out a solution which I can implement manually.

The AI's failures therefore support my learning. Our conversations jog my memory, introduce new concepts and ideas, provide terminology for more effective searches and verify my comprehension.

In this presentation, I will draw on my experience and analysis of my interactions with AI collaborators across two projects: the 'Twigstrument' (an electroacoustic bowed twig instrument) and 'Patchland' (a piece where playing a ROLI Seaboard controls movement through a 3D virtual environment).

I will demonstrate how I have engaged productively with AI-produced erroneous outputs, identifying useful prompt types, situations where AI has proved most valuable and how this human–non-human collaborative relationship affects my compositional process and the resulting work. In particular, I will show how the contextual focus of AI interaction builds understanding and confidence with code more efficiently than trying to adapt code designed for other people's projects; and how conversing with the LLM encourages articulation of understanding, revealing hidden areas of misinformation or knowledge loss.

I will support my findings of these practical benefits for learning with consideration of the context for this research, particularly the tension between autonomy and assistance for experimental composers working in a DIY context, and how this approach of learning through vicarious failure relates to recent ideas around the use of AI in text-based programming, where usable code is more often the result. By examining how this technology can be embraced as a collaborative partner through its failures as well as its capabilities, my research challenges an idea that AI's usefulness can only lie in how well it works and offers a model of AI use for composition which supports composer skill development and creative agency.

Saario, Antti (Falmouth University).

Haptic Turn: From Accessibility and Augmentation to Affective Performance.

This paper maps a haptic turn in live music from audience accessibility-and-augmentation toward an affective performance question of: what changes when vibration becomes a shared, co-present performance medium for both performer and audience?

Drawing on the Live Audience Accessibility & Augmentation (LAAA) research project (Bossey, 2023) and associated Beat Blocks haptic-flooring experiments across both stage and audience zones, the paper analyses three performances by the multi-instrumentalist vocalist and world champion beatboxer WOL (artist formerly known as Bellatrix): one set at Cheltenham Jazz Festival/Access to Music in May 2024, and two sets at the Academy of Music and Theatre Arts (AMATA) in Sept 2024. At both venues, both the artist and audiences could opt into a haptic-floor area (PA-only versus PA-plus-haptics), producing a two-tier listening – or rather experiencing – ecology for both artist and audience.

Theoretically, the paper is informed by affect-oriented and relational approaches to performance and technology, and methodologically it combines practice-led observation (including earlier Beat Blocks event-based trials at AMATA with multiple performers and wide range of sonic materials) with a semi-structured interview with WOL focused on monitoring, bodily intensity, performer–audience connection,

and ‘feedforward’ effects on future practice. WOL’s baseline performance ecology positions stage monitoring as the condition for “dropping in” (WOL, 2024), so when self-audibility is compromised, attention (negatively) shifts from relational presence to technical, stage/live sound management and sound engineering considerations. Introducing Beat Blocks reconfigured this ecology through its potential to intensify embodied timing and “bass weight” (WOL, 2024), but also increased cognitive load for the artist, especially in the first performance at Cheltenham where limited rehearsal and suboptimal monitoring reduced the potential for performance presence (energy) and audience connection. Across the subsequent sets, familiarity and improved production conditions enabled more selective, performance-station-specific use (e.g., stepping on/off the haptic flooring; different application for electric- and double bass, voice and beatboxing), revealing instrument- and technique-dependent thresholds in vibration tolerance and control.

Read relationally, the haptic floor does not simply ‘add sensation’ but participates in configuring what can be heard, felt, and done (by performer, audience, sound engineer) live in real time. Notably, the PA sound–haptics intra-action also reshaped timbral hierarchies and expectations, with subtle (‘small’) sonic materials and details (e.g., picked ukulele lines; subtle vocoder textures) becoming tactilely large, opening new compositional and performative possibilities. The work proposes that accessibility infrastructures (haptic routing, monitoring, spatial staging) are also affective infrastructures and that ‘care’ (time, engineering relationship, and performer agency) is the enabling technology that determines whether haptics function as gimmick, accommodation, or as an effective and affective non-human collaborative partner. The paper closes with design and production implications, and maps how these findings will feed forward into further artist-led experimentation in which haptics are treated as a generative affective parameter in live and recorded production contexts.

Serra, Francesc Moya (University of Westminster) and Iker Ormazabal Martinez (University of Westminster).

3D Vector Topology for Electromagnetic Sound Manipulation.

This paper presents the design and development of an audio manipulation instrument based on transformations occurring during the transmission of audio signals via a magnetic field. Rather than treating electromagnetic transmission as a neutral carrier, the instrument foregrounds the magnetic field itself as an active, performative medium in which sound is transformed through spatial interaction. This interaction departs from traditional tactile interfaces by removing static controls such as knobs, faders, and keys, and instead distance, velocity, and orientation become the primary parameters for sonic modulation.

Audio to be processed is fed to a modified induction loop, converting the signal from the audio domain to an electromagnetic domain, and subsequently is captured back into the audio domain using a pickup. Small variations in the pickup’s position and orientation produce significant changes in the resulting sound, creating a dynamic system in which the interaction between the performer and the electromagnetic field yields both deterministic and emergent behaviours. The three-dimensionality of the magnetic field – including areas of varying strength, nulls, and directional sensitivity– allows the pickup to navigate a complex spatial terrain. The instrument appears to exhibit field-line highways and null trenches, enabling an exploration of a 3D topology rather than interaction with a fixed sound source. In this context, the pickup is better understood as an electromagnetic field-reading device, and the performer as operating from within a 3D geometric field rather than outside it.

The hardware design is based on a modified induction loop capable of receiving arbitrary audio signals, while the software layer consists of a custom interface and dynamics control system. This allows for controlled feedback loops and hands-free interaction, enabling sonic chaos-exploration within a constrained and playable

dynamic range. The system supports both signal-driven and no-input feedback configurations between induction loop and pickup.

Initial tests and signal analysis suggest the introduction of compression-like behaviour, a frequency dependent noise floor, and the generation of harmonics, asymmetric distortion, and wavefolding-like artefacts. These resulting transformations are amplitude and frequency dependent, inherently non-linear, and often unpredictable. Pickup position and orientation changes can produce tremolo, filtering, dropouts, and saturation effects, reinforcing the interpretation of the system as a spatially responsive, field-based instrument. Repeatability is limited due to the sensitivity of the system to physical configuration, environmental conditions, and non-linear coupling, positioning performance as an exploratory journey with varying outcomes rather than a reproducible process.

The instrument is conceived and performed as a 3D navigation through an invisible vector topology. Field-derived dynamics such as direction, gradient, stability, and boundaries are mapped into spatial rendering and scene logic using Higher Order Ambisonics. The work situates electromagnetic field exploration as both a sound-shaping process and an immersive performance paradigm, proposing an approach to spatial music practice grounded in embodied navigation of an invisible physical medium.

Stefani, Ewan (University of Leeds).

Towards an Experiential Framework for Synthesizer Scholarship: Mapping Human Engagement with Hardware Instruments.

This paper advances an approach to synthesizer scholarship that foregrounds the human experience of interacting with the instrument. This perspective marks a significant departure from my earlier research, which addressed broader questions of synthesizer practice and organology. In this study, I focus on my sustained engagement with a single hardware instrument: the PERfourMER MkII, a four-voice polyphonic, multi-timbral analogue synthesizer manufactured by the German company Vermona.

Through an experimental case study, the paper explores the emotional and musical significance of this instrument, offering an in-depth account of my relationship with it—an analysis that would not be possible within more generalized research frameworks. This approach seeks to illuminate how individual instruments shape creative practice and contribute to the ongoing relevance of hardware synthesizers in contemporary music-making.

The paper proposes a novel framework for evaluating the impact and value of hardware synthesizers, considering their sonic character and sound design capabilities, musical potential and limitations, and the multi-sensory experience of interacting with a physical ‘device’. Drawing on existing research into musical haptics, human perception, and multi-sensory engagement with instruments, the paper explores the extent to which a specific analogue synthesizer can be regarded as equivalent to an acoustic instrument. Key differences in interactive experience—such as the absence of a vibrating body and the limited role of body movement—are discussed alongside features unique to hardware synthesizers, including tactile engagement with mechanical switches, the ergonomics of physical controls, and overall design aesthetics. The study maps the analogue synthesizer’s control panel according to a hierarchy of sensory and musical engagement with individual parameters.

The paper concludes with a brief critical analysis of this case study and outlines how the proposed framework will be extended to other instruments and users, arguing that such an approach to synthesizer scholarship may

help us learn why hardware and analogue electronic instruments continue to hold significance for musicians in a digital age.

Sun, Anke (Rensselaer Polytechnic Institute), Joey Latka (Rensselaer Polytechnic Institute) and Everett Carpenter (Rensselaer Polytechnic Institute).

Un-tooling the Interface: Somatic Entanglement and Queer Ecologies in SITEs.

This practice-based research presents SITEs (Sonic Immersive Tactile Environments), an open game experience that challenges the utilitarian paradigm of music technology by dissolving the rigid boundaries between player, instrument, and environment. Drawing upon Pauline Oliveros's Deep Listening practice, Catriona Sandilands's Queer Ecologies, and Luis-Manuel Garcia-Mispireta's concept of sonic tactility, the project interrogates the notion of the interface as a mere tool for control. Instead, SITEs reconfigures the interface as a site of entanglement, utilizing the DataOSC mobile application to transform the player's somatic data into a collaborative agent within a generative digital ecosystem.

Currently in testing development, SITEs leverages the Open Sound Control (OSC) protocol to stream high-resolution gyroscope and accelerometer data from the player's handheld device into a real-time ambisonic audio engine. This technical workflow moves beyond the discrete syntax of traditional MIDI control, replacing it with a continuous, fluid stream of embodied data. The installation guides the player through three distinct phenomenological states:

1. Landscape: Utilizing generative sequences of Schumann Resonances, this environment demands "attunement." The player drives the soundscape not through domination, but through "Deep Listening," learning that subtle, intentional movements yield the most profound sonic shifts.

2. Refractive: A high-energy state where granular synthesis refracts the player's kinetic energy into molecular sonic textures. This environment materializes the "sensory-affective" intimacy of the queer dance floor, defamiliarizing the body by scattering its sonic reflection across the spatial field.

3. Quantum: A polymorphic environment driven by glitch aesthetics and fractured signal paths. Here, the relationship between gesture and sound becomes non-linear, immersing the player in a fluid digital ecosystem that unsettles traditional cause-and-effect mechanics.

By situating the "tool" (the smartphone running DataOSC) as an extension of the body rather than a distinct object, SITEs operationalizes Annie Goh's "echo as method." The system does not merely obey the player; it diffracts their embodied knowledge back to them, generating new ways of knowing that privilege neurodivergent, queer, and Indigenous spatialities. This presentation will detail the technical architecture of the DataOSC integration and analyze how the installation's "un-tooling" of the interface fosters a post-humanist mode of creative co-existence.

Szarka, József (Budapest University of Technology and Economics).

One Platform to Rule Them All? The Artist-Fan Disconnect in the Age of Extraction.

Every successful artist undergoes a transition where the act of creation — composition, lyric writing, rehearsal, performing live, recording audio and video — is increasingly overshadowed by the logistical burden of audience management. As artists seek to convert casual listeners into fans, the industry's growing complexity necessitates intermediaries. However, while managers, labels, music publishers, distributors, aggregators, promoters, ticketing companies, and webshops offer support, they – often even disproportionately – diminish

the artist's financial share and inevitably increase the distance between the artist and the fan. Digital platforms initially promised to bridge this gap, yet this promise remains unfulfilled. Following the "extraction" patterns analyzed by Wu (2025), I apply this methodology to the music ecosystem, finding that platforms like Facebook, YouTube, and Spotify initially helped artists to connect fans, then, with changing their algorithms, artificially decrease fans' awareness of the artist, often forcing artists to pay for access to their own established fanbase.

This paper presents a case study of Leander, a platinum-selling Hungarian singer-songwriter, multi-instrumentalist performing artist. It analyzes his trajectory from establishing a dominant presence on YouTube and Facebook to the subsequent loss of organic reach on these platforms despite his ever-rising career success. The paper outlines the "platform fatigue" experienced by modern creators and proposes an independent, artist-owned solution to bypass digital gatekeepers and re-establish direct-to-fan connectivity. To better understand platformisation's impact on creators' revenue streams, I conducted time-use interviews with over 20 artists (diverse in genre, aged 18-65, with an equal gender split). Based on these findings, I propose an „Artist2Fan" model that integrates all fan activities – from streaming to ticketing and merchandise – into a single platform. This model facilitates sustainable fanbase growth and allows more personalized fan interaction with significantly greater time efficiency for the artist.

Søndergaard, Morten (Aalborg University).

Sound + Art: A complicated network of practiced entanglements.

This paper approaches what is commonly gathered under the label "sound art", not as a clearly defined genre, but as a dense weave of practices in which sound and art continually fold into innovations in music. Rather than presupposing that technology sits outside these practices as a neutral set of tools, I argue that sound + art is best understood as a complicated network of similarities, overlapping and crisscrossing, in which technological creativity and innovation in music emerges from the entanglement of sonic and artistic techniques. The term "sound art" thus functions less as a stable category and more as a loose pointer to those innovative practices—installations, performances, recordings, sonifications, text-sound pieces, noise experiments, AI-driven soundscapes—where entanglements become especially visible and audible.

My conceptual starting point is Wittgenstein's insight that many of our key concepts do not possess a single essence but hold together as family resemblances, as "a complicated network of similarities, overlapping and crisscrossing." I propose that sound + art is best thought along these lines: as a field in which different practices share overlapping techniques, materials, and listening situations, without converging on any definitional core. In this view, sound and art are not objects but ways of acting, linked to what Wittgenstein calls language-games, in which understanding consists in mastering a technique. Crucially, these techniques are technologically mediated: microphones, loudspeakers, digital editing, sensors, and networks enter not as external tools but as elements of the rule-systems that guide and disturb our sonic practices. We become entangled in these rules—our conventions, our devices' constraints, our listening habits—and it is this entanglement that becomes a source of technological creativity in sound + art.

A central move in the paper is to treat listening itself as a technique. Drawing on Wittgenstein's remarks on hearing and "receptive attitude," I conceptualise listening as a rule-governed practice shaped by cultural and technical conditions. Modern sound reproduction may be seen as operating what I term the "Cartesian headset": a historically specific configuration that cultivates a disembodied mode of listening, isolating sound from place, body, and social context. Sound + art frequently exposes and bends this listening regime. Works that iteratively re-record speech until it dissolves into room resonance, montage media-informatic fragments

into new temporalities, or restage voice and noise in architectural and urban spaces do not simply "use" audio technologies; they operationalise them as part of a creative reconfiguration of how listening itself functions.

The paper develops this argument through clusters of case studies that foreground systems, chance, and nonhuman patterns on the one hand, and bodies, infrastructures, and popular musical forms on the other. Algorithmic compositions, broadcast- and glitch-based works, and data/sonification projects show how technological creativity is distributed across human and nonhuman agents, attuning us to patterns no unaided ear could perceive.

Bringing these strands together, I suggest that what drives innovation in music is not an essence but a network of practiced entanglements of sound + art: recurring techniques and operations that exhibit family resemblances across disparate works and contexts.

Teigland, Tore (Kristiania University of Applied Sciences).

Mixing popular music in Dolby Atmos.

Dolby Atmos is an immersive sound format first introduced in 2012, initially limited to cinemas only. In 2014, Dolby Atmos made the transition into home theatres sparking excitement amongst entertainment fans and HiFi enthusiasts. However, when Dolby Atmos Music was announced to the music industry in 2019, few music studios were properly equipped to mix in the format, and Dolby Atmos Music did not receive much attention. It wasn't until June 2021, when Apple Music announced support for Dolby Atmos Music under the name Apple Spatial Audio, from which things really started to change. Suddenly, streaming of Dolby Atmos Music grew exponentially, with labels and artists picking up on the trend releasing more and more of their catalogue to Atmos as well as other competing immersive sound formats. Consequently, music-studios, -engineers and -producers found themselves investing time and money adapting to this new format. At present, Dolby Atmos has grown into one of the biggest buzzes in the music production community worldwide and has been so in recent years. This study investigates perspectives, methodologies, and techniques for mixing popular music in Dolby Atmos by conducting semi-structured interviews with professional mixing engineers working extensively in this format. Methodologically, both execution and treatment of the interviews draw on narrative inquiry (Riessman, 2008; Kim, 2015) and grounded theory (Corbin and Strauss, 2015). Findings from these interviews are used to shed light on contemporary Dolby Atmos Music mixing practices. The aim is to accumulate and categorize knowledge, craftsmanship and innovative approaches acquired through artistic exploration and practices. To share these findings with the community of music production and promote insights to encourage new and upcoming practicians as well as future developments and innovations in the art and craft of immersive music production.

Thompson, Paul (Leeds Beckett University) and Eva Petersen (Liverpool Institute for Performing Arts).

Dreaming of You: The Emergence of Deltasonic Records .

Since the turn of the 20th century, innumerable British record labels have emerged, merged, folded or have been taken over, however scholarly studies of British record labels have been notably sparse with a limited number of broader texts on some of the UK's record labels (i.e Cimino, 1992; Southall, 2003; Pettersson, 2008) and only a handful of studies on some of the larger UK-based record labels such as Rough Trade

(Hesmondhalgh, 1997), Mute Records (Beaven, O'Dair & Osborne, 2019) and a range of UK Independent Record Labels (Ogg, 2016).

Deltasonic is a British record label based in Liverpool, England that formed by Alan Wills, the former drummer with Liverpool bands Shack, Top and The Wild Swans. Wills's innovative approach led to musical and cultural success with the artists that they signed including The Coral and The Zutons. As a publishing company, Deltasonic also had success in 2009 with Miles Kane, and the Last Shadow Puppets' album, The Age of the Understatement (2009). Despite its success and signing other notable artists including Mountaineers, The Dead 60s, The Little Flames, The Rascals, The Basement, Candie Payne, The Longcut and The Suzukis, little has been written about the history of Deltasonic as a label and publishing company.

Using data collected from a range of interviews with a selection of artists and label operatives who worked at Deltasonic, and personal recollections from co-author Dr Eva Peterson who was signed to Deltasonic with band The Little Flames, the following paper explores the history, happenings and innovative operations of Deltasonic to uncover its "hidden" histories and stories from those inside the label. In addition, we foreground the women of Deltasonic Records who made important contributions, both in the limelight and behind the scenes, to one of Liverpool's most successful record labels.

Tignor, Chrissy (California State Polytechnic University).

Innovation Rewind! Finding new inspiration and creativity through vintage, forgotten and thrifted musical instruments.

In an industry rushing to create the most cutting-edge and innovative technology, you're invited to pause and rewind. Lifetime thrifter and vintage enthusiast Chrissy Tignor explores how musicians can find new inspiration through instruments and audio equipment of the past. Designed for producers and musicians of all levels, this talk encourages reconnection with physical hardware and an openness to allowing those tools to lead the creative process. This presentation culminates in a live performance on hardware instruments from Chrissy's collection

Chrissy Tignor is an innovative music educator, curriculum developer, audio engineer, music producer, and content creator with a passion for empowering music creators of all levels through engaging and accessible education. She spent eight years as a full-time professor in the Contemporary Writing and Production Department at Berklee College of Music, and she authored and co-authored five courses with Berklee Online, reaching thousands of students worldwide. She is currently a full-time professor at California State Polytechnic University in the Music Industry Studies Department.

Chrissy shares her expertise and enthusiasm for music production with a global audience through her social media platforms (@datachild). Her content includes her unique flea market finds of vintage audio gear and music production tips. These channels reflect her passion for fostering creativity and discovery in music technology.

As the former Director of Education at Splice, Chrissy spearheaded initiatives to advance music technology education. She launched the company's first student discount program, created experiential learning opportunities centered on sample pack creation, and developed educational content in collaboration with award-winning producers like Sky Rompiendo, Di Genius, Malay and Jenna Andrews.

In 2017, Chrissy started the Audio Upcycle project, a music technology initiative at the National Conservatory of Music in the Dominican Republic. Partnering with engineers and educators, she helped establish arecording

facility equipped with donated gear, empowering students to record and produce a full album ofDominican music. Today, the program includes a music production course that offers Berklee College of Music credit, expanding educational pathways for aspiring musicians and producers.

Throughout her career, Chrissy has collaborated with renowned clients and artists, including Spotify, iZotope, Sequential, ROLI, Eventide, TLC, Discovery Channel, Kamille, Sylvia Massy, Bastille, Julien Baker, and more. She has shared her expertise at institutions worldwide, including Syracuse University, Universidad Autónoma de Santo Domingo, the Uppingham School in the UK, the Shanghai Conservatory, the Baron School of Music in Hong Kong and the School of the Arts Singapore.

Toulson, Rob (RT60 Ltd) and Mike Exarchos (RT60 Ltd).

Headphone-Free Recording: from concept to commercialisation.

This presentation gives a case study of the concept-to-commercialisation journey of a novel audio technology with the potential to reshape established music recording paradigms. Headphone-Free Recording (HFR), developed by the authors, is an AI-enabled innovation that facilitates multitrack recording without the need for performers to wear headphones. In doing so, it addresses a long-standing constraint of multitrack production workflows — the requirement for headphone monitoring — that has persisted since the pioneering work of Les Paul and Ampex in the 1940s and 1950s.

The presentation will outline the initial conceptualisation of the HFR problem–solution framework and trace the subsequent development roadmap, from early proof-of-concept prototyping through to the construction of a near-market demonstrator and eventual launch as a consumer-facing product. Particular attention will be given to platform expansion strategies required to commercialise a ubiquitous high-technology audio solution, including deployment across iOS, macOS, Android, Linux and Windows environments, as well as integration within bespoke embedded audio DSP systems.

In addition, the presentation will examine key aspects of the commercialisation process, including securing innovation funding from Innovate UK (and other financing mechanisms), participation in the esteemed Abbey Road/BPI accelerator programme, and the strategic process of patent application to protect the underlying intellectual property.

Recent breakthrough music technologies provide useful comparative context. For example, Antares' Auto-Tune introduced real-time pitch correction into mainstream production workflows; LANDR demonstrated the scalability of AI-assisted mastering platforms; and Spleeter, developed by Deezer, popularised accessible AI-driven source separation. Each illustrates a trajectory from research-led innovation to widespread commercial adoption. Commonalities between these concept-to-commercialisation journeys in the music technology arena will be discussed, with the aim of identifying best practice frameworks for developing new audio and music technologies that can deliver valuable new tools for consumers.

Wearing, Scott (University of Oxford).

‘Liveness’ in Real-Time Score Algorithms.

Real-time scores, generated in live performance, allow composers to recreate the same relationship that a performer has with live electronic sound between other performers: they may be interactive and responsive to performers, managed by another performer behind the computer, or responsive to other stimuli. Performing from a real-time score allows for a unique blend of mathematical rigour with human expression and

interpretation. This type of music creation is the first in which liveness, the extent to which live sounds can be recognised as being created in real-time (Croft, 2007), becomes a consideration of the musical score. My presentation seeks to demonstrate a set of analytical criteria for real-time score algorithms, building on the research of David-Kim Boyle and Seth Shafer to critically evaluate the score's liveness through the lens of the performer-performer and performer-electronics relationships.

Previous scholarship in the field of electronic scores frequently prioritises the visual design of the score (Kim-Boyle, 2014), the performer-score relationship, and the performer-electronic sound relationship (Hope, 2017). In my presentation, I shall analyse the ability of different algorithms to control the direction of the music in a live, responsive manner.

Other music featuring live electronics typically relies on improvisation or on a fixed score to control the structure, whilst electronic elements are fixed to background, responsive, or accompaniment roles (Croft, 2007). In the case of real-time scores, a new 'governing' role emerges, in which the electronics determine how the music unfolds. The success of a real-time scoring system in effectively controlling macrostructures depends on the algorithm's versatility in responding to the performer(s), the variability in output, and the ability to track its previous decisions. Algorithms in this field of composition face another structural difficulty than earlier forms of algorithmic music: unlike standard interaction systems in which electronics respond to humans, performers reading from a real-time score create a feedback loop in which the sound they produce is returned to them as a visual cue. How well an algorithm can escape or utilise this loop is also a measure of its success. These are some of the criteria I will use to evaluate the liveness of the structure-creation process and the role of governance in real-time score algorithms.

Overall, my presentation will make the case for the criteria I use to analyse real-time scoring algorithms, thereby addressing a significant research gap in the field of interactive music, and proposing foundations for future composition with real-time score techniques

Williams, Brendan (University of Salford) and Brendan Williams (University of Salford).

Reframing Realism: Grounded insights into spatial treatments in classical music.

For many, classical music engineering practice represents a qualitative benchmark in terms of the faithful capture and presentation of an authentic timbral and spatial reality. The recording and broadcast industries have - perhaps inadvertently - evolved in such a way as to keep the contemporary technical workflow of popular and classical music production largely distinct from each other; each 'camp' developing a unique rational surrounding the choice of both hardware and software, and maintaining distinct conventions around the manipulation of dynamic and frequency-based material. This paradigm is generally mirrored within education, perpetuating what might be considered an isolationist approach within both worlds of musicking.

This study, routed in grounded theory and autoethnography seeks to explore observations drawn from professional practice which suggest that audiences for classical music (and emerging adjacent forms) are more open to novel spatial interventions than accepted convention might have us believe. With the widespread adoption of immersive capture and mix techniques these considerations become increasingly prescient. Through a series of semi-structured interviews and listening sessions with performers, audiences from a variety of musical backgrounds and practicing producer/engineers, the work explores how attitudes are developing and demonstrates where the findings have influenced forthcoming commercial releases.

Wilsmore, Robert (Leeds Beckett University) and Martin Koszolko (Monash University).

Tool or Collaborator? Towards a Typology of Collaboration with Technology in Music Production.

Traditionally collaboration has been thought of as a co-creative process between humans (1), and between 'living' humans at that, elsewise, where the process lacks reciprocity, the term shifts to 'influence'.

Where technology is employed in the production process it is generally considered as a 'tool', but we do not tend to use people in a joint-authorship process as a 'tool'. That would be rude.

But the line between tool and collaborator is looking a little more squiggly of late. 'Digital minds' (2) may sit somewhere along a spectrum of sentience. Opposingly, Mark Katz (3) puts forward that 'Technologies of music not only include the usual suspects, [but] the human body can also be considered a form of technology'. So, it is possible to reverse the traditional order, the human body can be a tool and the digital mind a being and hence a collaborator. But would we want ourselves to be spoken of as being a tool, and would we want to offend a (potentially) sentient digital mind by labelling them as a tool?

In progressive liberalist fashion, we will use the term 'collaboration' as our umbrella term in an attempt to pre-emptively avoid the possibility of offending technologies (or humans). Hence, we put forward from our research into contemporary practices, types of joint-authorship with music technology, creating some porous categories to help us articulate and negotiate the current tool-collaboration nexus.

Notes:

1. See, for example, Bennis, W. and Biederman, P. (1997) Organizing Genius: The Secrets of Creative Collaboration. Cambridge, Massachusetts, Perseus Books; John-Steiner, V. (2000) Creative Collaboration. New York: Oxford University Press; Sawyer, K. (2007) Group Genius: The Creative Power of Collaboration. New York, Basic Books.

2. Bostron, N., and Shulman, C. (2020) 'Sharing the World with Digital Minds'. in Clarke, S., Zohny, H. & Savulescu, J. (eds.): Rethinking Moral Status. Oxford University Press (2021)

3. Katz, M. (2022) Music and Technology: A Very Short Introduction. Oxford: Oxford University Press.

Woollard, Jamie (Concordia University).

Thin Walls: Urban Housing as Sound Technology.

This paper argues that dense urban housing operates as sound technology. Apartment buildings propagate and shape vibration and ambience through their material conditions: thin partition walls, ventilation systems, stairwells, plumbing, and balconies route and transform sound, creating involuntary forms of spatial audio. These structures impact social relationships between neighbours, circulating intimacy, conflict and power through everyday listening and soundmaking. In this sense, multi-unit housing functions as an interactive acoustic system in which humans and infrastructure co-produce sonic environments.

Building on this premise, the paper presents Thin Walls, a long-term research-creation project developed with a group of renters living in a gentrifying neighbourhood of Montreal. The project employs workshop-based methods that combine sound studies, acoustic ecology, and site-specific performance with my background in electroacoustic composition and aural-skills pedagogy. Participants work collectively through listening exercises, improvisation, field recording, and compositional prompts. Together, we attend to how domestic

soundscapes change over time and explore the desires and frustrations bound up with the material sound technologies of home.

The conference presentation will outline the project's methodological framework, share specific case examples and audio excerpts from participant workshops, and discuss how approaching everyday structures as sound technology can enliven electroacoustic composition and performance practices. I will focus in particular on how contingency—material instability, disagreement between neighbours and participants, mixed or unresolved feelings within individuals, and neighbourhood change—enters directly into the creative process, shaping research approaches and objectives. This will be addressed both conceptually and through concrete examples of the works that have emerged in collaboration with participants.

By considering urban housing as sound technology and by developing participatory, site-responsive methods for composing with it, Thin Walls offers innovative approaches to composition, performance, and music research. It suggests that interactive sound environments include the everyday places in which people are already living, listening, and relating to one another.

Wright, Joe (Royal Birmingham Conservatoire).

Post-Oramics: legacy and new possibilities in the prototyping of new, Oram-inspired devices.

This presentation will discuss Daphne Oram's Oramics, it's importance and legacy for the history of electronic music, and recent research at Royal Birmingham Conservatoire that explores the future creative potential of Oramics as a drawn/gesture-based interface for creative music production.

After leaving the BBC in 1959, Daphne Oram's work on her graphical scoring synthesiser, Oramics, was groundbreaking for its time: foreshadowing features like the MIDI roll and automation that are near-ubiquitous in modern DAWs, while also offering the user a vast expressive range by scanning and translating nuanced, hand-painted gestures. For Oram, drawn sound represented a route to music making that is 'so much more humanized than turning lots of knobs' – and this human factor is as crucial in the context of musically-agentic tools today as it was in face of the more restrictive technical frontiers faced by Oram in the mid 20th century.

Oram's work and legacy has seen increasing exposure since her death in 2003, largely through the work of the Oram Trust, Oram Awards, and through archival and practice research at Goldsmiths University in the archiving and further exploration of Orams designs for Oramics. Tom Richard's PhD work in realising Oram's revised designs for a tabletop version of the system – Mini Oramics – make composing with Oramics a possibility for musicians today. Unfortunately, Mini-Oramics' one-of-a-kind nature limits access to a broader user base, and by extension, to a unique interface between composer and electronic sound. In the digital realm, touchscreen installations and an iOS version of Oramics have also been developed by Mick Grierson at Goldsmiths, but are no longer maintained. A RBC, the graphic scoring app, KlangPad takes inspiration from Oramics in its synthesis of Oram and Iannis Xenakis' work, but also doesn't fully capture the essence of Oramics in it own right.

Recent research at RBC, with support from the Daphne Oram Trust, has begun exploring the extension of Oramics from this existing post-Oramics landscape: the prototype, MIDI-Oramics, aims to make the Mini-Oramics experience more accessible – aiming towards a finished device that can be open sourced and built by schools, institutions and enthusiasts. Work towards a haptic, Oramics-inspired device aims to fill a gap in accessible production tools that might open up new possibilities for shaping automation in modern DAWs. Continuation of work relating to KlangPad investigates how motion data in smartphones might be used to take Oramics-like gestures into the 3D domain, and overcome issues of limited screen size on mobile devices for a graphic scoring app.

Yates, Tim (University of Greenwich).

Inside Outside In: Designing Machines for Simultaneous Perspective.

This presentation introduces The Ball Balancer (working title) which I am developing as part of a practice-based PhD at the University of Greenwich. It is an autonomous robotic sculpture that uses spatial audio and physical movement to explore the relationship between mechanical precision and acoustic phenomena. It is a ball balancing machine that manipulates a steel ball around a flat wooden plate and spatialises the live acoustic sound into the spatial audio rig in real time, meaning that the sound of the ball rolls around the listener's head. This places the audience outside the physical machine and inside the virtual machine simultaneously. The installation is designed to explore the relationship between physical and virtual spaces and to examine how immersive technology can enable the multiple simultaneous perspectives that would otherwise not be achievable. It is the first in a planned series of installations.

I will discuss the practicalities and design considerations of developing the machine, as well as some of the artistic and theoretical questions I aim to address. As my research progresses I will build on the ideas and outcomes of this project to refine my thoughts in the following areas:

• Does the simultaneous condition produce a perceptual experience that neither physical nor virtual space achieves alone?

• Does the mechanical real-time generation of virtualised sound matter to that experience?

• How does disrupting habitual perception — forcing attention onto the act of listening itself using interactive and mechanical elements — change what we're capable of hearing?

In developing this and subsequent installations I will engage with these questions directly through practice, building theoretical frameworks in parallel with the work rather than in advance of it. Existing frameworks — presence research, VR discourse, installation theory — tend to treat immersion as the substitution of one spatial frame for another. What interests me is what happens when both frames are present simultaneously and neither is optional and, in particular, what role mechanical and physical interactive systems can play in that condition.

Xu, Chen (Fujian Normal University).

Algorithm-Based Music Analysis*：*An Innovative Paradigm in Contemporary Musicology.

Music analysis based on algorithms represents an innovative paradigm in contemporary musicology. Currently, a multitude of algorithmic frameworks rooted in mathematical methodologies are applicable to music analysis, enabling the simulation of composers' creative processes and subsequent music generation. Theoretical constructs such as pitch-class sets and the Neo-Riemannian —foundational to well-known advanced theories of music analysis—are predicated on well-defined algorithmic principles. Constrained by the accuracy and completeness of existing rules, my works focuses on developing novel algorithmic frameworks to address emerging challenges.

In view of the interpretability defects that beset current relations between pc sets (PcSs)corresponding to the segments and practical limitations of previous methods, I use linear operation rules and introduce a concept known as pitch-class vectors(PcVs) to construct two diagrams establishing these PcSs' most important relations for the most widely used non-equivalent pc sets (NePcSs) (cardinal number = 3 or 4).The goal is to enrich set theory's segmentation power by establishing the linear relationships of PcVs. Along the way, I'm going to show

how a new relation involving NePcSs based on linear relationships of PcVs generalizes the segmental associations, extends the segmentation to arbitrary chords, scales and other NePcSs that their relations have not yet been defined and explained. I also provide a description of simple linear operations and general rules for this new relation. I refer to three compositional applications and analyze short excerpts from Babbitt, Schöenberg, and a Chinese composer, Daqun Jia.

Additionally, I develop a matrix algorithm to derive twelve-tone sequence decisions, which facilitates the generation of personalized twelve-tone sequence matrices tailored to composers' specific creative requirements, such as the Chinese pentatonic twelve-tone sequence, thereby supporting subsequent composition.

Research on algorithm-driven music content generation and analysis is increasingly emerging as a prominent frontier in musicology. The advancement of music generation algorithms has brought forth novel opportunities and challenges for music composition, music analysis, and related domains. Looking forward, continuous innovation and breakthroughs in these technologies are anticipated to inject new momentum into the development of the global music industry.