Jacob Collier and MusicFX DJ: A case study

Annotated transcript

Michelle Sowey

[Voice of Darren 'Robbo' Robertson, audio producer]: "If I was going to give all the potential of AI in the music world to one person and say 'Mess with this and let us know what we can do with it', I would give it to Jacob Collier… Jacob, go off, do your eccentric stuff, work out what we can do with this as humanity, and then come back and we'll decide whether it's actually worth it or not" (Wittam et al., 2024, 18:54; music and visuals from Jacob Collier, 2014).

Jacob Collier is a true polymath: a six-time Grammy award-winning singer, songwriter, producer and multi-instrumentalist. He's been using technology to support his music practice since childhood. Even before AI, digital technology was integral to his experiments in complex harmony, melodic looping, microtonality, and polyphonic singing (music and visuals from Jacob Collier, 2019). Collier is also known for his energetic live and interactive performances (e.g., Jacob Collier, 2022), where he conducts entire audiences to sing harmony. Collier's ingenuity has earned him a passionate following, and he's been dubbed "jazz's new Messiah" (Lewis, 2015; music and visuals from SpectrasonicVIDEO, 2017).

His approach to using AI is prodigious, intuitive and experimental (visuals and music from Google, 2024). He sees AI technology as a true collaborative partner that "lend[s] itself to … rich co-creation" (Google, 2024, 4:40).

Collier's process of using AI

Collier helped develop Google's generative AI, MusicFX DJ, which allows users to shape musical outputs in real time through the use of text prompts (Google Labs, 2024, image).

Collier thrives on sonic exploration, and collaborating with AI pushes him to the edge of the unknown. Reflecting a theme in Firbank and Caramiaux's (2018) research,[1] he says: "A lot of the things that musically are the most inspiring are not necessarily things that sound great or clean, and so I think a lot of the weirdness of this can be actually quite enlightening" (Jacob Collier, 2024, 10:54).

Collier's creative process with AI mirrors his lifelong practice of improvisation. He is simultaneously both audience and creator, witnessing the music unfold in real time and responding as it emerges. The way he articulates this dual role echoes Dillon's (2006) research into meaningful engagement in creative activities. Dillon focuses especially on the

[1] Fiebank and Caramiaux (2018, p. 20 [pre-print]) note that "in music, machine learning may be also used as a way to discover new sounds or interactive relationships, and the training data may just be a way to ground this exploration in a region of the design space a user thinks is promising… When users employ a trained model for musical exploration, they may also seek out configurations of input data that look nothing like the data present in the training set".

exploratory, social practice of networked jamming, an early 2000s forerunner of MusicFX DJ that supports simultaneous immersion in both listening and performance.

Spontaneity and intentional craftsmanship each have a place in Collier's AI music practice. His process of prompting the AI is curiosity-driven and serendipitous. He describes it as "a different form of sampling, where you're harvesting from your own weird brain" (Jacob Collier, 2024, 29:09). His musical judgment comes into play in selecting sections of the generated output to loop, layer, key-change, and accompany with his voice and analogue instruments.

How MusicFX DJ works

[Jacob Collier]: "It's like an ongoing experiment. It's like, what happens if you scrunch up the whole of music and go [makes crumpling gesture] and then you see what comes out? … And sometimes you need a bit of strange chaos to get you going" (Jacob Collier, 2024, 7:33; 16:29).

MusicFX DJ functions as an AI-powered "master-amalgamator" (Mullen, 2024).

[Jacob Collier plays the charango, an Andean string instrument]: "Let's see if it [MusicFX DJ] can interpret this in some kind of interesting way… Oh, yeah, it kind of did it! … I don't think I've ever heard charango and French horns mixed together before, but I'm about to… There they are" (Jacob Collier, 2024, 17:39).

You can prompt it with instruments and genres, but also with feelings, moods, or abstract ideas. It responds by creating a "continuously evolving tapestry of sound" (Jacob Collier, 2024).

[Jacob Collier]: "It rewards very strange sounds, which I've always enjoyed. Sounds that are improbable, that I've never heard before" (Jacob Collier, 2024, 1:59).

The tool generates a continuous stream of music that users can shape by muting individual layers, adjusting tempo, or introducing new sonic elements.

[Jacob Collier]: "Can you put a banjo in a dubstep drop?" (Google, 2024, 1:49). "You kind of like craft this real-time sonic putty that's endlessly surprising, and it seeks to sort of alchemise or forge connections between things that would otherwise be unlikely" (Google, 2024, 1:19).

How does MusicFX DJ fit the definition of artificial intelligence?

MusicFX DJ conforms to Russell and Norvig's (2010, p. viii) definition of artificial intelligence as an intelligent agent that receives percepts from the environment and takes actions that affect that environment. While it's a narrow form of AI that operates only within a constrained domain,[2] MusicFX DJ fulfils three criteria for artificial intelligence.

[2] Marrone et al. (2024, p. 3) explain that "AI can be categorized into two main types: narrow or weak AI, where the system is designed and trained for a particular task, and general or strong AI, where the system possesses generalized human cognitive abilities".

The first is deep learning. Powered by DeepMind's Lyria RealTime model (Google DeepMind, n.d.; visuals from BazAI, 2025), MusicFX DJ employs multi-layered neural networks trained on large datasets to transform natural language inputs into continuous musical outputs. While details of the system's underlying architecture haven't been released publicly, it likely uses transformer-based architecture with self-attention mechanisms.[3] These mechanisms would enable it to model long-range musical dependencies like recurring motifs, harmonic structures, and rhythmic patterns. This would account for how the system produces musically coherent compositions.

The second criterion is generative capability. Rather than just remixing existing tracks, MusicFX DJ uses patterns in its training data to synthesise novel content in particular musical styles (Mycka & Mańdziuk, 2025, p. 210; visuals from Google DeepMind, n.d.).

The third criterion is interactive adaptation. The system responds to user input in real time, modifying the musical stream as prompts and controls change. Users can adjust textural aspects like density, brightness and chaos (visuals from Google DeepMind, 2024). They can also conduct instrumentation, create breakdowns, and manage bass drops by adding or removing instruments (Google DeepMind, 2024).

Ethical, legal or social issues relating to AI and creativity

Collier's use of MusicFX DJ raises a constellation of ethical, legal, and social concerns. The emergence of AI has sparked an existential crisis in arts communities. What I want to examine here is the risk that AI technologies are eroding human musical creativity, authorship, and identity.

[Video shows visuals and music from Avidan, 2025.] Musician Asaf Avidan articulates the central anxiety:

> Every once in a while, there is a technological advance that changes the way we see ourselves as a species.…We are creative. That's what defines us as a species, and now we are on the brink or in the midst of a revolution that takes that away from us, and we need to redefine ourselves. Because if a machine can be as creative or more creative than we are, what does it mean about us? (Avidan, 2024, 1:52)

This reflects a broader cultural uncertainty about human value in an age of AI. The question of creative authorship is particularly acute. Where do we draw the line between tools that enhance human capability and those that threaten to supplant us?[4]

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[3] Google has demonstrated the effectiveness of transformer-based architectures with self-attention mechanisms for music generation through models like Music Transformer, which uses self-attention to achieve long-range coherence (Huang et al., 2018). Given Google's established use of transformer architectures in their music AI research, MusicFX DJ likely employs similar architectural principles.

[4] Niemann (2025) writes: "Tools like rulers and erasers don't diminish my authorship. Neither does painting on a canvas that was stretched by an assistant. But what if I contribute just the prompt and the idea, and the execution is done by an algorithm?"

[Voice of sound artist, Vicky Clarke]: “I think there's always going to be these ethical and aesthetic questions about how much is too much, how much do we relinquish to the machines” (Bliss, 2023 50:58; visuals and sound art from 180 Fact, 2022).

Another concern is the erosion of fundamental musical skills like ear training (visuals and music from TablaSam, 2019). Over-reliance on AI technologies could lead to the atrophy of genuine musicianship (Graff, 2024,16:25).

What's more, there’s a growing unease that as AI takes on more creative responsibility, music will be detached from human experience and stripped of emotional investment (Graff, 2024, 6:33, speaker: Kirk Smith).

Research by Civit and colleagues reveals how generative AI changes the nature of composition itself, with composers becoming more like producers managing algorithmic output.[5]

AI technologies compel us to articulate what we most value about human creativity. Artistic expression is driven by lived experience, intention, understanding, struggle, and the impulse to make meaning. In these respects, human creativity remains something no machine can replicate.

Analysis and evaluation of the success of a composition by Jacob Collier with MusicFX DJ

[This section examines the composition created by Jacob Collier using MusicFX DJ that appears in Jacob Collier (2024) from 1:41:05 to 1:43:20. Analysis of key changes and chord types was conducted using Samplab software (Samplab GmbH, 2025).]

Analysis

This is a through-composed piece, unfolding as a continuous cinematic narrative with three distinct sections.

It opens with a with a frenetic melodic ascent and quickly establishes an otherworldly ambience. Over a rapid ostinato pulse, a collage of instruments emerges: trombone with cuica, gamelan with harpsichord, koto with didgeridoo, and car horns with church bells. A key change from B minor to A major adds brightness, while the percussive elements build in intensity.

A sudden gear shift introduces a Latin-Funk groove, with punchy horn riffs and syncopated rhythms. This energetic middle section uses frequent dominant harmony and extended chords that add a jazz flavour.

The piece then transitions into its final section: a contemplative, ethereal soundscape. Floating woodwind melodies soar over taiko drums, textured with ambient drone elements

[5] Civit et al. (2022, p. 14) observe that "the composer [becomes] more of an arranger”, and they playfully liken the composer’s new role to that of "a producer from the 70s rock and roll scene trying to order the wild creativity of some misbehaving rock stars.”

of whale song and bagpipes. A final key change lifts the piece from A major to D major. Suspended chords create a sense of ambiguity before the piece reaches a clean harmonic resolution. In the closing moments, a persistent looping motif on oboe and lyre slowly fades away.

Evaluation

I'll evaluate the composition against three criteria: emotional impact, originality, and aesthetic coherence.

- **Emotional impact.** While certain passages are hypnotic, joyful, and haunting, the piece lacks a clear emotional arc, or familiar methods of building anticipation. Each section is too brief to allow full immersion in its sound-world. The overall composition is disorienting on first hearing, but its emotional impact becomes clearer on repeated listening. *Verdict: Moderately successful.*
- **Originality.** The composition leans toward avant-garde. Its structural freedom, experimental timbres, irregular meters and density changes are intellectually engaging. While the AI-generated tones are sometimes compressed and artifactual (Mullen, 2024) and their expressiveness is limited (Carnovalini & Rodà, p. 14), the work explores unexpected musical territory. *Verdict: Clearly successful.*
- **Aesthetic coherence.** The sudden shift in tone and style in the middle section disrupts the internal logic of the piece. A lack of overall coherence is a common criticism of AI-generated music,[6] with beginnings, endings and transitions often seeming jarring and mechanical (Simões, et al. 2019, p. 8). In this instance, Collier's extensive editorial arrangement has gone some way towards mitigating problems of narrative cohesiveness, but it has not been wholly successful. *Verdict: Partially successful.*

This collaboration succeeds in pushing musical boundaries. But at the same time, it reveals the challenge of achieving cohesive narrative flow in algorithmically-assisted composition. It's musically adventurous, but narratively fractured.

[6] It is worth noting that, like Collier, some other musical artists who collaborate with AI regard the 'brokenness' of AI-generated music as an asset for their creative practice. Bliss (2023) interviews two such artists: Christopher Melen, who comments favourably that "it'll suddenly go in a completely bizarre direction" (16:17) and Neil Campbell, who says "you refresh your browser and suddenly, it just throws the whole jam somewhere else" (20:43).

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