

**Music in a Wired Brain:  
Experimental Music and  
the Contemporary Posthuman**

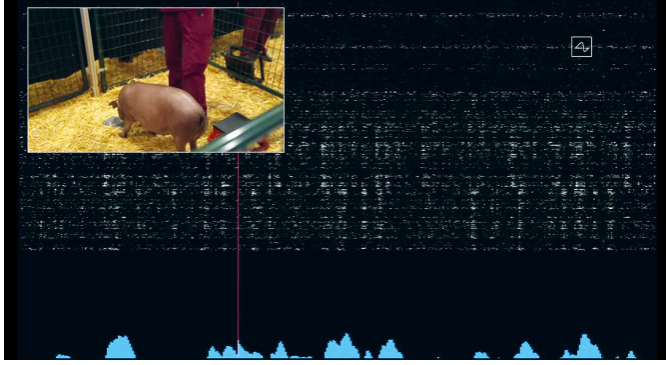
G Douglas Barrett

Researcher and artist G Douglas Barrett argues that experimental music speaks to the contemporary posthuman – a condition in which science and technology decenter human agency amid the uneven temporality of global capitalism since World War II. Barrett’s new book, *Experimenting the Human: Art, Music, and the Contemporary Posthuman*, recently published by the University of Chicago Press, makes this case by analyzing the work of experimentalists such as Alvin Lucier, Pamela Z, Nam June Paik, Pauline Oliveros, Laetitia Sonami, and Yasunao Tone. This article condenses material from the book’s introduction, »Music in a Wired Brain.«

If the ambitions of one tech corporation come to fruition, listeners may soon be able to stream music directly to their brains. The tech entrepreneur Elon Musk recently confirmed that the ability to listen to music silently without headphones is a feature planned for the neural implant chip his company Neuralink is currently developing.<sup>1</sup>

More than an audio device, to be sure, the implant promises to function as a multipurpose brain-machine interface that connects to your phone. With precedents

in medical therapeutics and EEG, the chip physically replaces a small piece of skull and uses a neurosurgical robot to stitch fine electrode threads into the brain. So far, the device has been restricted to animal brain output, although the company has recently announced sign-ups for human trials.<sup>2</sup> Music streaming remains aspirational as is direct, brain-to-brain communication. Musk’s goal is to use the device to meet the supposed »existential threat« of AI by allowing us to merge with it.<sup>3</sup>



Elon Musk demonstrating his Neuralink chip implanted in the brain of a pig named Gertrude.  
 Courtesy Neuralink

What can Musk's vision tell us about the status of the human in a moment marked by its purported technological decentering? What role has music played – particularly, experimental music since World War II – in developing and challenging the concept of the post-human? This concept ranges in function between fantasy, engineering program, and historical diagnosis. It refers to the human's relativization – even its potential supersession – amid technoscientific, biological, medical, and economic networks. Posthumanism refers to philosophical and analytical approaches that take this variously demoted, dematerialized, and de-autonomized human as a point of departure.

Rather than surveying posthumanism, I want to ask how the temporality of the postwar era complicates a progressive sequence already implied in the term's use of »post.« What happens to the supposed moving beyond the human in an era when time itself moves forward for some and seems to stand still – or indeed move backward – for others? How has art music composed the subject of this time?

In this short article, I show some of the ways postwar experimental music addresses this posthuman condition – along with the period in which it emerges, known as the contemporary. The contemporary is a concept that derives from art theory during the eighties and nineties as an alternative to postmodernism. It refers to the uneven temporality of postwar global capitalism, what the philosopher Peter Osborne calls its »totalizing but immanently fractured constellation of temporal relations.«<sup>4</sup>

The contemporary posthuman, then, is a function of this nonlinear time. Some suggest we've already become technological posthumans. Meanwhile, others emphasize the extended consequences of people of color, women, and other subaltern subjects having

not been considered fully human in the first place. Experimental music, I contend, addresses this condition not by staying within the formal structures of musical modernism but by producing extra-formal meaning through its immanent transdisciplinary involvement with postwar science, technology, and art movements.<sup>5</sup> This music not only uses tech like neural networks and artificial intelligence but also intervenes in centuries-old questions about what humans are in the first place.

For instance, in 1965, Alvin Lucier composed *Music for Solo Performer*, a work that calls for electrodes to be attached to the scalp of a musician who sits motionless as their EEG signals activate a battery of percussion instruments. Roughly a year later, Lucier anticipated brain-to-brain communication not unlike Neuralink's more recent vision: »I would love to be able to hook my brain up with the audience's brains so that I can tell them how I hear and think without having to go through the air.«<sup>6</sup>

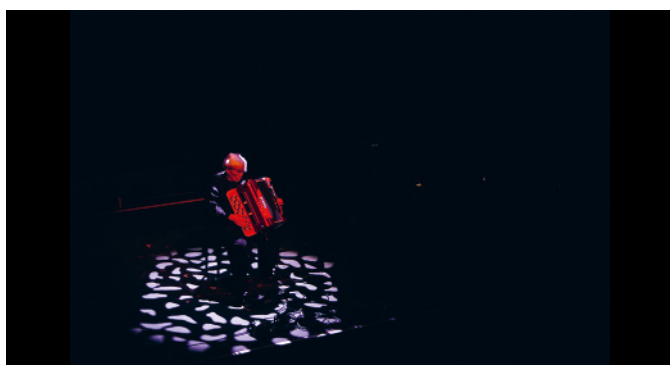


Alvin Lucier performing *Music for Solo Performer* (1965). Still from Robert Ashley's video *Music with Roots in the Aether* (1976)

In 2004, the composer Pauline Oliveros ruminated on the musical possibilities of the neural implants that futurist Ray Kurzweil discusses: »What if my ears could detach and fly around the space [and] merge with any other ears in the audience?«<sup>7</sup> Beyond formal structures of musical sound, Oliveros was interested in how such a technology might affect what she calls »future human values.«<sup>8</sup> And Lucier alludes to cognitive labor, and even political economy, when he refers to his process as »doing work.«<sup>9</sup>

To chart experimental music's interfaces with the posthuman, we must first look to the latter's ideological and technoscientific origins. Cybernetics is a transdisciplinary movement that grew out of the military science of World War II. In Norbert Wiener's watershed 1948

text, *Cybernetics: Or Control and Communication in the Animal and the Machine*, biological and mechanical systems alike appear as feedback networks that, not unlike a thermostat, seek an equilibrium with their environments.<sup>10</sup> Cybernetics has applied such systems-based models to a panoply of biological, technological, engineering, and economic fields. Cybernetics' genealogical relevance to the posthuman is difficult to overstate.<sup>11</sup> Yet if cybernetics challenges the centrality of the human, what is this concept of the human in the first place?



Composer, performer, and technologist Pauline Oliveros (1932–2016). Photo: Rosa Menkman

Ideologically, the posthuman springs from the racializing, gendered, and political-economic construction that is the human of humanism. Since the Enlightenment, philosophers have reckoned with the crisis initiated by René Descartes's dualist split between the mind and body. If the human can be identified as a mind that owns a body, liberal political theorists figured, then such a cognitive subject can effectively lease out the body's productive capacities and conscript it into the labor relations of market liberal capitalism.

In a notorious passage, liberal political theorist John Locke wrote in 1690, »Every man has a property in his own person.«<sup>12</sup> Rather than being identical to a body, the human – rendered not accidentally as »man« – possesses one. This concept of the human can already be seen to dematerialize the body – along with its attendant markers of gendered, racial, and sexual difference – and set the stage for the posthuman.<sup>13</sup>

In a different yet related path to the posthuman, the eighteenth-century philosopher Julien Offray de La Mettrie expanded Descartes's contention that the human body is, essentially, an automaton. If the mind is truly separate from the body, then the body could, at least in theory, be replaced by prosthetic organs, body parts, and, potentially, a full mechanical body: a *Machine Man*.<sup>14</sup> Responding to this idea, in 1964

the artist Nam June Paik created a work titled *Robot K-456*, which, I've argued, connects eighteenth-century musical automata to cybernetics while underlining the radical self-negating potential of human labor.<sup>15</sup> Apart from labor and political economy, though, how are we to approach the racializing and gendered aspects of »man«?

Given its apparent shortcomings, some wonder why we don't simply throw out humanism's vexed concept of the human. Still, others see the only way out as *through* it – the human of humanism, that is, may provide the very conditions of possibility for its overcoming. Posthumanism protracts a profound skepticism of the human already found in post-Enlightenment antihumanists such as Michel Foucault, Louis Althusser, and Jacques Derrida. Recently, the theorist Alexander Weheliye has studied the historical effects of the restriction of »man« in Locke and others to what he calls the »heteromascuine, white, propertied, and liberal subject,« which renders all others as exploitable nonhumans subject to the dehumanizing oppression of colonialism and slavery.<sup>16</sup>

While posthumanism gestures beyond the category of the human, many endure the extended effects of having been excluded from it. Such gestures, according to Zakiyyah Iman Jackson, »effectively ignore praxes of humanity and critiques produced by black people, particularly those praxes which are irreverent to the normative production of ›the human‹ or illegible from within the terms of its logic.«<sup>17</sup> Black feminist theorist Sylvia Wynter, a key reference for Weheliye, draws on cybernetics to argue not simply for abolishing the human of humanism but rather for reinventing it through a kind of cultural-biological »feedback loop.«<sup>18</sup>



Pamela Z performing *Voci*, 2003. Photo: Donald Swearingen

The composer Pamela Z uses musical feedback loops in her own reimagining of the human. Her work

*Voci* (2003), which Z describes as a »polyphonic mono-opera,« consists of eighteen scenes that combine vocal performance with digital video and audio processing.<sup>19</sup> Not only does Pamela Z use audio communications technologies, but she also considers their cultural meanings. In a scene titled »Voice Studies,« for instance, she addresses the problem of »linguistic profiling« in housing discrimination – callers being denied apartments based on the sound of their voice. While contemplating a technological future, Z considers the continuing exclusionary effects of humanity's past. What, then, *is* the human?

If you ask Immanuel Kant, we're social and political beings. In one of his last texts, the Enlightenment humanist couldn't define the human without reference to a hypothetical society of aliens who can't tell lies. Unlike these aliens, humans, for Kant, live in a »cosmopolitical« society of creatures whose thoughts may differ from their speech – a state that requires us to unite against deception and other such evils.<sup>20</sup> More recently, after realizing extraplanetary vocal music, Oliveros mused on the social effects of communication technologies: »What if we could share our thoughts instantly over a network as computers now do?«<sup>21</sup> Could the posthuman upend the kind of interiority Kant deems essential to our humanness?

Chips in our brains may not prevent us from lying. But in Slavoj Žižek's recent book on Neuralink and another German idealist, *Hegel in a Wired Brain* (2020), the Slovenian philosopher understands Musk's brain implants as threatening the very basis of private thought and, indeed, our ability to lie.<sup>22</sup> What would

happen to such a capacity if we were to realize Musk's fantasy of »merging« with AI? How would we understand ourselves in the absence of a boundary between interior and exterior subjective space? How would we experience music in a wired brain?

As I conclude in my new book *Experimenting the Human: Art, Music, and the Contemporary Post-human*, postwar experimental music composes and challenges the contemporary posthuman.<sup>23</sup> Picture Pamela Z sculpting the sound of her voice using her system of wearable sensors known as the BodySynth. Imagine Oliveros and others sending their voices to the moon and back using radio signals. Hear the evolving electroacoustic textures the musician and instrument designer Laetitia Sonami creates with her Lady's Glove. Or, consider Nam June Paik's walking, talking musical sculpture, *Robot K-456*. What these musical artworks have in common is an engagement with the notion that the privileged position of the human has found itself increasingly challenged through cultural, biological, medical, economic, and technoscientific means.

Yet rather than the postmodern, the temporality proper to this posthuman subject is the contemporary, while the art form that most rigorously and imaginatively responds to it is experimental music. I make this claim more thoroughly in *Experimenting the Human*, recently published by the University of Chicago Press. Through a series of six case studies, respectively, on Lucier, Pamela Z, Paik, Oliveros, Sonami, and Yasunao Tone, I show how these artists both produce and reflect on the contemporary posthuman.

**G Douglas Barrett** works on experimental music and contemporary art as a scholar and occasional practitioner. His critical writing has appeared in international peer-reviewed journals such as *Cultural Critique*, *Discourse*, *Postmodern Culture*, *Mosaic*, *Twentieth-Century Music*, and *Contemporary Music Review*. His new book, *Experimenting the Human: Art, Music, and the Contemporary Posthuman*, was published in 2023 by the University of Chicago Press. His first book, *After Sound: Toward a Critical Music*, was published in 2016.

1 Neuralink: »Neuralink Progress Update, Summer 2020.« August 28, 2020, <https://www.youtube.com/watch?v=DVvmgjBL74w> (accessed January 4, 2024). Prior to the event, which YouTube video documents, Elon Musk tweeted that he anticipated music streaming to be a feature of Neuralink. See Anthony Cuthbertson: »Elon Musk Claims His Neuralink Chip Will Allow You to Stream Music Directly to Your Brain.« *The Independent*, July 21, 2020. <https://www.independent.co.uk/life-style/gadgets-and-tech/news/elon-musk-neuralink-brain-computer-chip-music-stream-a9627686.html> (accessed January 4, 2024).

2 Neuralink: »Neuralink's First-in-Human Clinical Trial is Open for Recruitment.« September 19, 2023, <https://neuralink.com/blog/first-clinical-trial-open-for-recruitment/> (accessed January 4, 2024).

3 See the white paper: Elon Musk and Neuralink, »An Integrated Brain-Machine Interface Platform with Thousands of Channels.« *Journal of Medical Internet Research* 21.

4 Peter Osborne: *The Postconceptual Condition: Critical Essays*. New York 2018, p. 28 (eBook). See also Peter Osborne: *Anywhere or Not at All: Philosophy of Contemporary Art*. London 2013.

5 In this way, experimentalism qualifies as a kind of postformalist music or what I have elsewhere called »musical contemporary art.« See G Douglas Barrett: »Contemporary Art and the Problem of Music: Towards a Musical Contemporary Art.« *Twentieth-Century Music* 18, no. 2 (June 2021), pp. 223–48.

6 Alvin Lucier: unpublished letter to Joel Chadabe, no date (ca. 1966), »Correspondence 1963–1976.« in: *Alvin Lucier Papers 1939–2015*, New York Public Library, Box 3.

7 Pauline Oliveros: »Tripping on Wires: the Wireless

Body—Who is Improvising?« in: *Sounding the Margins: Collected Writings 1992–2009*, Kingston, NY 2010, p. 121–27 (123). Ray Kurzweil: »The Law of Accelerating Returns.« in: *Kurzweil: Accelerating Intelligence*, March 7, 2001, <https://www.kurzweilai.net/the-law-of-accelerating-returns> (accessed January 4, 2024).

8 Pauline Oliveros: »Quantum Listening: From Practice to Theory (to Practice Practice).« in: *Sounding the Margins*, pp. 73–91, 84.

9 Alvin Lucier: »Ostrava Days 2001—Transcript of Alvin Lucier Seminar.« seminar organized by Petr Kotik, [https://www.ocnmh.cz/days2001\\_transkript\\_lucier\\_.htm](https://www.ocnmh.cz/days2001_transkript_lucier_.htm). Cited in Douglas Kahn: *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts*. Berkeley 2013, p. 99.

10 Norbert Wiener: *Cybernetics: Or Control and Communication in the Animal and the Machine*, reissue of the 1961 second edition. Cambridge, MA 2019. See also Wiener: *The Human use of Human Beings*. London 1989 [1950].

11 According to the literary theorist Bruce Clarke, cybernetics was »the technoscientific forethought of the contemporary posthuman.« Bruce Clarke: *Posthuman Metamorphosis: Narrative and Systems*. New York 2008, p. 4. Note that Clarke's use of »contemporary« here does not necessarily equate to the periodizing concept I am elaborating.

12 John Locke: *Second Treatise of Government*, ed. C.B. Macpherson, Indianapolis, IN 1980, p. 18.

13 Katherine Hayles: *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago 1999, p. 4.

14 Julien Offray de La Mettrie: *Machine Man and Other Writings*, trans. ed. Ann Thomson. Cambridge, UK 1996, p. 7.

15 G Douglas Barrett: »Technological Catastrophe and

the Robots of Nam June Paik.« *Cultural Critique* 118 (Winter 2023), pp. 56–82.

16 Alexander G. Weheliye: *Habeas Viscus: Racializing Assemblages, Biopolitics, and Black Feminist Theories of the Human*. Durham 2014, p.135.

17 Zakiyyah Iman Jackson: »Outer Worlds: Persistence of Race in Movement ›Beyond the Human.« *GLQ: A Journal of Lesbian and Gay Studies* 21, No. 2–3 (June 2015), Dossier: Theorizing Queer Inhumanisms, ed. José Esteban Muñoz, pp. 215–18 (216). See also Zakiyyah Iman Jackson: *Becoming Human: Matter and Meaning in an Antiracist World*. New York 2020.

18 Weheliye: *Habeas Viscus*, p. 25. See also David Scott and Sylvia Wynter: »The Re-enchantment of Humanism: An Interview with Sylvia Wynter.« *Small Axe* 8 (September 2000), pp. 119–207.

19 Pamela Z: »Pamela Z's Voci.« <http://www.pamelaz.com/voci.html> (accessed January 4, 2024). See G Douglas Barrett: »How We Were Never Posthuman: Technologies of the Embodied Voice in Pamela Z's Voci.« *Twentieth-Century Music* 19, no. 1 (February 2022), pp. 3–27.

20 Immanuel Kant: *Anthropology from a Pragmatic Point of View*, trans. Robert B. Louden. Cambridge, UK 2006 [1798], pp. 238, 236.

21 Oliveros: »Quantum Listening.« p. 84. For my essay on Oliveros and SETI, see G Douglas Barrett, »Deep (Space) Listening: Posthuman Moonbounce in Oliveros's *Echoes from the Moon*.« *Discourse* 43, no. 3 (Fall 2021), pp. 321–50.

22 Slavoj Žižek: *Hegel in a Wired Brain*. New York 2020, p. 20.

23 G Douglas Barrett: *Experimenting the Human: Art, Music, and the Contemporary Posthuman*. Chicago 2023.