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Thinking telematically: Improvising music worlds under COVID and beyond

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Thinking telematically: Improvising music worlds under COVID and beyond

Abstract: The COVID-19 pandemic lockdown brought much attention to live music making via the internet, amplifying the previously marginal fields of livestream concertizing and networked music performance. Drawing connections among recent publications, artists' creative strategies, and his own experiences, the author surveys questions about musical telepresence that arose in this process, including reflections on the nature of musical liveness in an increasingly digital industry, the creative potentials of networked music making, and the value of "thinking telematically" about cultural production and social change.

Keywords: music; livestreams; telepresence; telematics; networked music performance; jazz; improvisation; covid-19; pandemic

Projecting presence

In 1957, Paul Robeson sonically projected himself across the ocean. He had been invited to a choral festival in Wales run by a mine workers union, but the US government had revoked his passport due to his political activism. Singing from a New York recording studio via newly laid transatlantic telephone cables, Robeson used his powerful voice to make a real-time connection with his longtime friends, a creative response to necessity.

In *Everything man: the form and function of Paul Robeson*, Shana Redmond situates this moment within a "holographic" presence Robeson cultivated throughout his career. Drawing on other events, including his recorded missive to the 1955 Bandung conference, Redmond's novel reading of Robeson's legacy offers a way of understanding how artists in the 20th century - particularly those in communities struggling against oppression - “[created] their own technologies of possibility.”[1]

Many scholars have focused on the impact of audio recording on jazz and Black music, but Redmond highlights another capacity that has profoundly extended our experience: telepresence. Robeson's concert is part of the pre-histories of *networked music performance* (NMP), a phrase we use today to describe real time music making, via the internet, by performers in different locations. Many artists also use the term *telematic* to specify artworks that are intentionally created for a networked medium.[2]

Prior to 2020, these fields were small niches for academics and tech enthusiasts, but COVID lockdowns catalyzed an unprecedented surge of interest in networked music, as well as related areas such as livestreaming and remote production. The first questions most musicians asked were about what tools existed, and what was even possible. Lockdown revealed the dissonance between our familiarity with telecommunications tools in our daily lives, compared with our creative work; apps like Facetime and Skype were widely used, but few people even knew if a similar tool existed for playing music. The telepresent, networked aspects of our world had suddenly become more pronounced than ever, and musicians needed a map to this new terrain.

Nearly two years later, such maps are easier to find, but the broader picture remains unsettled and unsettling, including the question of what a post-COVID arts economy will look like. Given the climate crisis and pandemic-induced shifts in the live performance ecosystem, will our profession continue to rely on run-out tours across continents and oceans, a key source of income for many jazz and improvising musicians? What will the ritual of improvisatory, musical "liveness" look like in a hyper-networked, post-pandemic world? What have we learned from the creative strategies musicians developed during the pandemic? The following is not an attempt to summarize those infinitely varied responses, but is instead a series of themed reflections inspired by them, with links to other nodes in the ongoing conversation.

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[1] Shana L. Redmond, *Everything Man: The Form and Function of Paul Robeson*, Durham: Duke University Press, 2020, p. 17.

[2] For more on the history of these terms and distinctions, see Eric C. Lemmon, “Telematic Music vs. Networked Music: Distinguishing Between Cybernetic Aspirations and Technological Music-Making,” *Journal of Network Music and Arts* 1 (2019): 30.

Digitizing liveness

Early in the lockdown, few topics of conversation were more prominent for musicians and listeners than livestreams. Previously, the medium had been mostly an add-on viewing option, leaving the primary, in-person experience untouched. But during lockdown, livestreams suddenly carried the weight of being not a secondary referent, but the sole experience for listeners.

Equally significant was that during the early, most restrictive stages of the pandemic, most livestreams were by necessity solo performances. There were exceptions to this: NPR streamed a series of "Alone Together" duo concerts from the homes of jazz couples, and some musicians, such as pianist Dan Tepfer, streamed small group concerts connecting musicians in the same city connected via low latency software (a technology discussed further below).[3] But during the first year of the pandemic, before vaccines made social gatherings more possible, the majority of musicians lacked such options and were effectively prevented from performing online with ensembles, a severe loss for jazz musicians given the importance of interactivity in their music.

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[3] For the NPR series, see <https://www.npr.org/2021/02/12/966660174/alone-together-jazz-couples-stuck-at-home>. For more on Tepfer's livestreams, see see “Playing Music Together Online Is Not As Simple As It Seems (Video),” Video by NPR Jazz Night in America, July 15, 2020. <https://www.npr.org/2020/07/14/891091995/playing-music-together-online-is-not-as-simple-as-it-seems>.

Even so, as the only option for reaching listeners other than outdoor performances, livestreams were still a crucial tool for both musicians and venues.[4] Some venues began livestreaming ensemble concerts from their spaces early in the pandemic, such as New York City's jazz club Smalls (June 2020), and others like the Village Vanguard took up the practice later, but few prominent venues could afford to avoid this trend, which was also widely practiced by musicians from their homes.[5] In one of the few studies based on survey data specifically from working jazz musicians during the pandemic, Monika Herzig suggests that early in the pandemic, over a quarter of jazz musicians participated in some form of livestream activity once per week. Herzig also details a number of livestream experiments by well-known musicians including Chick Corea, Melissa Walker and Christian McBride, and Erykah Badu, each of whom used the medium in a different way to support their creative goals and attract listeners.[6] Yet for most musicians as well as venues, livestreaming could not solve the problem of lost income from live performance, and many venues struggled to survive, including prominent clubs such as New York City's Jazz Standard and Los Angeles' Blue Whale which sadly closed permanently due to the pandemic's economic toll.[7]

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[4] Especially during the early, more restrictive phases of lockdown, many musicians found creative ways to perform outdoor, socially-distanced concerts. See for example the description of outdoor jazz performances in NYC in fall 2020 in Margot Boyer-Dry, "A Bright Spot in the Pandemic Gloom: Jazz Is Everywhere in New York," *The New York Times*, November 20, 2020. https://www.nytimes.com/2020/11/20/nyregion/coronavirus-nyc-jazz-concerts.html.

[5] See Scherstuhl, Alan. "Live From New York, It's Jazz at a Distance." *The New York Times*, May 31, 2020. https://www.nytimes.com/2020/05/31/arts/music/jazz-smalls-coronavirus-concerts.html.

[6] Monika Herzig, "What the World Needs Now Is Jazz," *Critical Studies in Improvisation / Études Critiques En Improvisation* 14, no. 2–3 (May 11, 2021). https://doi.org/10.21083/csieci.v14i2.6431. Another data-based study focused on musicians' resilience during the pandemic is Carrie Cai, Michelle Carney, Nida Zada, and Michael Terry, "Breakdowns and Breakthroughs: Observing Musicians' Responses to the COVID-19 Pandemic," in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, 1–13. Yokohama Japan: ACM, 2021. https://doi.org/10.1145/3411764.3445192.

In addition to questioning their economic viability, many musicians were troubled by the very nature of livestreams: Should we substitute the fullness of in-person concerts with broadcasts that often reach the listener only after passing through network glitches, compression and poor quality equipment? Was the mere fact of "liveness" enough to make this experience worth choosing over a recording made with meticulous care and control? Musicians and festival organizers Karen Ng and Scott Thomson eventually concluded that for improvisatory music, livestreamed concerts

> rob the music of its presence, a quality that musicians work tirelessly to be able to project into a live concert space, and which recording, mixing, and mastering engineers work tirelessly to document on record. As a result, the livestream concert falls in between discrete and vital elements of the ecosystem that makes the field of creative music vibrant. It's not really a concert and it's not really a recording, and its in-between status makes it less than either.[8]

Of course, as evidenced in Herzig's report and countless first-hand accounts from listeners and musicians, others felt differently, reporting that livestreamed concerts were a lifeline in dark times, and explaining that the direct access to an artist in an unfiltered setting (their home) or the emotional resonance of the moment compensated for the medium's limited resolution. In addition, livestream concerts also enabled forming audiences from across the world, a benefit for artists and listeners in smaller fields. For example, NYC-based Arts For Art's "online salon" series used simple Zoom calls in which performers could see listeners (rather than the more broadcast-oriented "webinar" format), and drew audiences from networks the organization had long cultivated, both local and far away. Experiencing that series both as a performer and a listener, I was struck by the powerful sense of intimacy and community in that shared space, despite the minimal production scale.[9]

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[7] See Kleinman, Avery. "Jazz Venues Have Been Hit Particularly Hard by the Pandemic. They Are Hoping the Worst Is Over." *The Washington Post*, October 15, 2021. https://www.washingtonpost.com/entertainment/music/jazz-venues-pandemic/2021/10/14/83dc32d8-2798-11ec-8d53-67cfb452aa60_story.html; and Chinen, Nate. "The Blue Whale, Beloved Hub of the Jazz Scene in Los Angeles, Announces Permanent Closure." *WBGO Jazz After Hours*, December 31, 2020. https://www.wbgo.org/music/2020-12-31/the-blue-whale-beloved-hub-of-the-jazz-scene-in-los-angeles-announces-permanent-closure.

[8] Karen Ng and Scott Thomson, "COVID-19 and the Creative Music Ecology," *Critical Studies in Improvisation / Études Critiques En Improvisation* 14, no. 1 (March 13, 2021). https://doi.org/10.21083/csieci.v14i1.6424.

All of these artistic and social potentials, positive and negative, are part of the expansion of the livestream medium induced by the pandemic, but just as critical are the underlying questions that this new technological chapter opens up about access, privilege, and "liveness" as a commodity in our increasingly networked, digitized world. For example, in the US, where Black and Hispanic people as well as Native Americans on tribal lands are significantly less likely than White people to have broadband internet or a traditional computer, how will such differences impact the ways that audience members and performers experience this bandwidth-intensive medium? [10] Which musical genres' audiences will be more likely to pay for livestreamed performances, and which artists will earn enough income from livestreams to make producing them worthwhile? In short, as Laura Risk puts it in a detailed study of livestreams during the pandemic, "who is excluded, for lack of technology or accessibility," in the medium's future? Such questions must also take into account how technology is changing our relationship to live performance; for example, as Risk points out:

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[9] See https://www.artsforart.org/onlinesalon.html.

[10] See Sara Atske and Rew Perrin, "Home Broadband Adoption, Computer Ownership Vary by Race, Ethnicity in the U.S.," *Pew Research Center* (blog), accessed October 23, 2021. https://www.pewresearch.org/fact-tank/2021/07/16/home-broadband-adoption-computer-ownership-vary-by-race-ethnicity-in-the-u-s/; and Wang, Hansi Lo. "Native Americans On Tribal Land Are 'The Least Connected' To High-Speed Internet." *NPR*, December 6, 2018. https://www.npr.org/2018/12/06/673364305/native-americans-on-tribal-land-are-the-least-connected-to-high-speed-internet.

> For viewers, livestreams offer both the thrill of spontaneity and the comfort of long-term access. For artists, however, the pandemic has raised the spectre of an Internet saturated with free live performances that remain perpetually available in a never-ending online present.[11]

Learning from latency

By 2020, musicians in the fields of NMP and telematic music (myself included) had long been using fast networks at academic institutions to produce concerts with high quality audio/video and, depending on geographic distance, minimal to no perceivable audio latency. Yet the software was difficult to use, and there was little knowledge about possibilities on home networks. And now we were all, suddenly, at home.

The result was an unprecedented scale of software development and end-user experiments. Most musicians came to NMP not seeking new creative forms, but simply a substitute for what they conventionally did in person, a way to play together with good sound and tight synchrony. Even with ideal conditions, that goal is difficult, and at longer distances it is impossible.[12] But many musicians, educators and software developers nonetheless embraced NMP and invested extensive time to learn existing tools and create new ones, expanding the field exponentially.[13]

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[11] Laura Risk, "Imperfections and Intimacies: Trebling Effects and the Improvisational Aesthetics of Pandemic-Era Livestreaming," *Critical Studies in Improvisation / Études Critiques En Improvisation* 14, no. 1 (March 13, 2021). https://doi.org/10.21083/csieci.v14i1.6471. Though not specifically related to livestreams, Risk draws in part here on Eric Drott's analysis of streaming audio; see Eric Drott, "Music as a Technology of Surveillance" *Journal of the Society for American Music* 12, no. 3 (August 2018): 233–67. https://doi.org/10.1017/S1752196318000196; also influential is the earlier work on liveness by Philip Auslander, *Liveness: Performance in a Mediatized Culture*, 2nd ed. London, New York: Routledge, 2008. For a detailed discussion of the aesthetics of "liveness" in jazz musicians' response to the pandemic, see Asher Tobin Chodos, "Simultaneity, Synchrony and Liveness: Jazz Confronts the Pandemic," in *Jazz and Culture* 4, no. 2, 2021 (forthcoming).

[12] The distance threshold for tightly synchronous performance, in the conventional sense, is roughly 500 miles. For a brief explanation, see "Playing Music Together Online Is Not As

In addition to increasing digital audio and remote collaboration skills, these efforts led many musicians to engage more deeply with questions about synchrony and timing, especially the relationship between latency and musical aesthetics. Conversations about NMP frequently centered on lowering one-way total latency to 30 milliseconds or less, understood as the threshold for conventionally "tight" synchrony.[14] Yet higher latencies are common even in many conventional music scenarios, such as marching bands, operas, pipe organs, and large stages with amplification, complicating the idea of a simple required measurement. For some musicians, bringing their existing practice into NMP contexts led to an increased understanding of these nuances of musical timing.

For example, one student jazz combo class I worked with via NMP software was able to achieve a low enough latency to perform complex groove-based music. But on some days, the latency would creep slightly higher, and over many hours of rehearsals, students became sensitized to these subtle microtiming discrepancies. In particular, they

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Simple As It Seems (Video)," cited above. For a more detailed overview, see Michael Dessen, "Networked Music Performance: An Introduction for Musicians and Educators," Medium.com, September 18, 2020. <https://mdessen.medium.com/networked-music-performance-an-introduction-for-musicians-and-educators-d31d33716bd2>

[13] For example, the communities of users and developers around JackTrip (https://jacktrip.org) and Jamulus (https://jamulus.io), two prominent NMP softwares, expanded rapidly during the pandemic, and JackTrip eventually developed a new platform (Virtual Studio) aimed at reducing cost and complexity for large ensembles with musicians performing from home, a usage scenario inspired by the needs of musicians during the pandemic. Many musicians new to this technology brought technological expertise that helped expand the tools, such as pianist Dan Tepfer, noted above, who helped create an important new feature ("broadcast mode") in JackTrip that began as a creative solution to his own experiences with NMP livestreams. In addition, new, open source NMP apps, most notably Sonobus (https://sonobus.net), were created by developers during the pandemic, aimed at simplifying the end-user experience without sacrificing quality.

[14] See Rottondi, Cristina, Chris Chafe, Claudio Allocchio, and Augusto Sarti. "An Overview on Networked Music Performance Technologies," *IEEE Access* 4 (2016): 8823–43. https://doi.org/10.1109/ACCESS.2016.2628440.

developed a tactile understanding of how latency was connected to the nature of the music, learning, for example, that slow tempos, or textures that lacked instruments explicitly subdividing the beat such as drums, allowed them to tolerate slightly higher latency levels. Most musicians still view NMP as a temporary substitute they hope to never need again, but for those who invested time in this work, this increased sensitivity can expand perceptual and performative skills that are central to our work as musicians.[15]

At the same time, many other musicians during the pandemic, using NMP software or even simpler tools like Zoom, explored creative approaches to playing together with latency, as artists in the telematic music community had been doing for many years prior.[16] Not surprisingly, many of these musicians came from jazz and improvised music traditions; as Jason Robinson has pointed out, improvisers in what George E. Lewis terms "Afrological" traditions have played a key role in the evolution of telematic music, given the ways that their aesthetic practices enable them to engage with the unique properties of the networked stage, especially latency.[17]

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[15] For more on the role of microtiming in African diasporic musical practices, see Vijay Iyer, “Microstructures of Feel, Macrostructures of Sound: Embodied Cognition in West African and African-American Musics,” Ph.D. Dissertation, University of California, Berkeley, 1998.

[16] For background history on telematic music making, particularly interculturally, see Roger Mills, *Tele-Improvisation: Intercultural Interaction in the Online Global Music Jam Session*, Cham: Springer, 2019; and for an introduction to both technological and conceptual aspects of the medium, see Rebekah Wilson, “Aesthetic and Technical Strategies for Networked Music Performance.” *AI & Society*, November 18, 2020. https://doi.org/10.1007/s00146-020-01099-4. Examples of telematic experimentation during the pandemic are numerous and include the NowNet Arts Online Performance Series (https://nownetarts.org/series-2020), which created an ongoing space to accommodate many new participants in NMP, and the Quarantine Sessions led by JackTrip software developer Chris Chafe and others (https://chrischafe.net/quarantine-sessions/).

[17] Jason Robinson, “The Networked Body: Physicality, Embodiment, and Latency in Multi-Site Performance,” in *Negotiated Moments: Improvisation, Sound, and Subjectivity*, edited by Ellen Waterman and Gillian Siddall, Durham: Duke University Press, 2016. For more on the term Afrological, see George E. Lewis, “Improvised Music After 1950: Afrological and Eurological Perspectives,” *Black Music Research Journal* 16, no. 1 (1996): 91–122.

An example I often use to elaborate on this aesthetic resonance is the richly layered rhythmic texture on "What Reason Could I Give," from Ornette Coleman's 1972 album *Science Fiction*. The unique rhythmic feel Coleman achieves requires musicians with a high level of sensitivity and skill, but in my view, would not require a latency under the often-cited 30 millisecond threshold. Decades before telepresent tools such as videoconferencing were widely available, Coleman and other Afrological composer-improvisers created new musical practices that resonate, rhythmically and conceptually, with the multidimensionality of the telematic space.

In a recent study grounded in his experience performing over networks during the pandemic, Eric Lewis suggests similar ideas, writing that

> A phenomenologically difficult task that expert Afrological improvisers undertake is keeping one's own musical line related to the heard pulse while altering its micro-timing and, at the same time, hearing and responding to the distinct ways in which others in an improvising ensemble are doing the same thing. These always fluid and different relationships that individual parts in a collective improvisation have to a perceived if not heard pulse are, in effect, distinct latencies... To improvise in this way is to simultaneously occupy multiple temporal domains and to respond in real-time to their changing nature.[18]

Lewis relates this musical skill to ways we might engage latency in non-musical contexts, including public health officials' responses to COVID. Such an analytical framework resonates with the broader telematic arts field, where early pioneers such as Roy Ascott theorized about the critical role that artists play in understanding the emerging reality of telepresence.[19]

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[18] Eric Lewis, "Black Time in the Age of COVID: Improvising Afrologically in Both Telematic Performance and Public Health Policy," *Critical Studies in Improvisation / Études Critiques En Improvisation* 14, no. 1 (March 13, 2021). https://doi.org/10.21083/csieci.v14i1.6456. For more on microtiming and rhythmic feel in Afrological rhythmic practice, see Iyer, Ibid.

Thinking telematically

Playing together in person, we never experience an ensemble in exactly the same way - sitting next to the drums is very different than next to the piano - but we typically strive to minimize those differences and achieve a shared feeling of the overall sound. In networked music performance environments, these differences are often amplified even further. Small movements in relation to your mic might make a huge impact on how you are perceived by others in the group, who have no acoustic sound to compensate; what each player hears can differ vastly given their network quality, equipment, and other aspects of each person's space. Multi-site music making, even more than when we are in person, often involves consciously working towards that goal of a shared experience, with the understanding that we cannot achieve it precisely.

Prior to the pandemic, in large-scale telematic concerts with groups of 4-6 musicians at multiple sites, we experienced similar dynamics in the relationship between our stages. One site's best speaker placement for local sound quality might cause audio problems at the other location; one location's ideal lighting for their audience would ruin the video of their artists projected to the other audience. Negotiating these production challenges requires not only good communication and compromise, but more fundamentally, a commitment to the multi-site nature of the event and an understanding that all our actions and choices are fundamentally intertwined.

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[19] Roy Ascott, *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*, Berkeley: Univ. of California Press, 2007.

This way of "thinking telematically" is not only a required skill for working effectively in telepresence, but also an ethical stance that is crucial for addressing the social questions and possibilities the medium raises. What can we learn about collaboration and power from creating networked concerts across sites with differential resources? How can we create better online learning environments for students whose networks and other resources differ wildly, as was often the case during the pandemic? Most importantly, how can networks help us build new music worlds - at once sonic and social - that transform existing hierarchies of power and access, rather than reinforcing them?

These are not new questions, but they were brought out with more urgency than ever by the pandemic. Numerous music educators, for example, spoke to me about how campus closures during COVID meant that less privileged students lacked access to instruments or practice spaces, in many cases forcing them to drop music studies altogether. Technology cannot solve these problems; as Naomi Klein has pointed out, “tech provides us with powerful tools, but not every solution is technological.”[20]

Yet telepresence - like those practice rooms and pianos on college campuses - can be a crucial tool for empowering musicians and students, whether through sustained, long-distance intercultural collaborations or through local partnerships that challenge us to approach our own community in new ways.[21] Higher education institutions, particularly given their privileged network access, have a responsibility to support this work, which like any other area of cultural activity does not take place only at individual homes but also in a wide variety of public spaces. The pandemic forced us into an unprecedented global experiment with telepresence, and turning that new knowledge into progressive social change post-COVID will require approaching technology with a long-term commitment to thinking telematically in our institution-building.

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[20] Naomi Klein, "How Big Tech Plans to Profit from the Pandemic," *The Guardian*, May 13, 2020. https://www.theguardian.com/news/2020/may/13/naomi-klein-how-big-tech-plans-to-profit-from-coronavirus-pandemic.

[21] For more detailed suggestions on using networked music for socially-transformative music education, see the final sections of Dessen, “An Introduction” (Ibid.); see also the organization Teach to Learn, which facilitates online music educational partnerships throughout the world (https://www.teachtolearn.life).

At the turn of the twentieth century, wax cylinder recordings must have struck people in a way similar to today's Zoom screens, simultaneously a modern marvel and a poor-quality substitute for the "real thing." And yet what musician today - above all in a field like jazz, where records are our "textbooks," as Max Roach famously put it - is not profoundly influenced by artists whose presence they have only experienced through sonic vibrations captured on recordings? Recording and broadcast technologies have shaped our world in ways barely imaginable a century ago. If we are in a parallel moment today with telepresence, then we are only at the beginning of imagining how this evolving medium will extend our relationships to time, place, and one another in the decades to come.

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Author bio

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