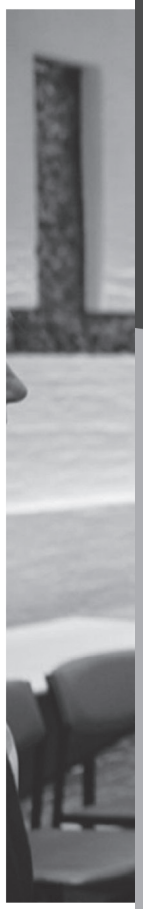
ALGORHYTHMS: LIVING IN AND OUT OF SYNC WITH TECHNOLOGY

Joods Museum

Every Picture

Foto: Maria Austria © M A I

Fotoschatten uit eigen collectie



Tells a Story

25 apr 2022 t/m
4 sept 2022

jck.nl

CLUE+

RESEARCH INSTITUTE FOR CULTURE, COGNITION, HISTORY AND HERITAGE

VU VRIJE UNIVERSITEIT AMSTERDAM | Faculty of Humanities

TABLE OF CONTENTS

Dear Reader,

In your hands you hold the second issue of 2022, *Algorythms: Living in and out of Sync with Technology.* In this double issue we ride on the sonic waves and algorithmic infrastructures of the technologies which orchestrate and conduct the rhythms of our everyday life. As our guest editor Evelyn Wan elaborates, this journey is nostalgic, troubling, and becoming more and more apparent in our everyday use of algorithms and online environments. *Algorythms: Living in and out of Sync with Technology* focuses on the artworks which reflect this reality back at us and imagine ways of articulating and imagining its affects. Evelyn has guided us with her outstanding dedication and knowledge for which we are deeply grateful. Working with her hybridly — for the first time in over two years! — has been a joy, so we hope you experience as much fun in reading this issue as we have in making it.

The RISO cover of this issue is an artwork that Rafaël Rozendaal especially made for Kunstlicht, called "Accumulation," 2022. This cover is linked to his website plugin called "Abstract Browsing", free for all to download on his website, where all web content is reduced to coloured rectangles. This work — as in all his work — Rozendaal uses the internet as his canvas,to look for technological compositions.

With this issue we also wave goodbye to several editors. Danica Pinteric, Alexa Simonics, and Kimberly van Kleef have been with us for the past two years. Aline Hernández is also leaving the editorial board after five years with *Kunstlicht*. We wish them all the best and thank them for their hard work and incredibly insightful contributions throughout the years.

Joyce Poot, our co-editor-in-chief, is also leaving after having spearheaded the journal for three years. Her love for Excel will never be matched and I (Anna) will miss her dearly. Thank you, Joyce.

Our next issue *A Labour of Love* is published in October. We, the editorial team, often refer to the work we do at *Kunstlicht* as a so-called 'labour of love'. As a group of people who work intimately with words, we began inspecting this sentence. On closer examination, it appeared an oxymoron. And then not really; after all, even love requires work and continued effort. When love enters a labour-centred sentence — "I love my job," "I love what I do for a living," "it is a labour of love," "I love writing/editing/being creative" — the work is made innate. Alarm bells of warnings against capitalism's tendency to consume even our free time and inner emotional energy go off. Against such alarms, we want to question if there is such a thing as a 'labour of love'. From behind the bars of the daily realities that govern late-stage capitalism, it seems that acts of care and compassion aren't prioritised or compensated enough. Regardless, they persist. And so we ask: Where is the love?

We hope you enjoy the coming Summer and that *Kunstlicht* accompanies you on your balconies, in parks, on beaches, or wherever you might find a moment to read.

Kindly,
Anna and Joyce

INTRODUCTION

ALGORHYTHMS: LIVING IN AND OUT OF SYNC WITH TECHNOLOGY

Evelyn Wan

We live in an algorithmic age. Invisible networks fill the environment, our devices searching hungrily for connectivity. Packets of data are sent through the ether, travelling across oceans along data cables, dancing past switches into the cloud. As Benjamin Bratton proposes in *The Stack: On Software and Sovereignty* (2015), planetary-scale computation takes place across layers and layers of machine, interlacing hardware and software into what he calls 'the Stack'.[1] The Stack is not only comprised of fibre-optic cables, electrical circuits, dashboards, servers, but also human interaction and socio-political forces. In what has been termed 'the infrastructural turn' in Media Studies, media scholars turn their attention to the materialities of the media landscape, and study the physical networks of communication that underpin digital culture as we know it.[2]

Algorithms are, of course, an integral part of the infrastructure of digital culture. The Stack, envisioned by Bratton as a megastructure that spans Earth and beyond, requires algorithms to hold systems of data and information together. According to Ed Finn's study of the term, an algorithm is "the vehicle or tool of computation,"[3] techno-mathematical instructions for certain programmed tasks, programmed by engineers, read and executed by computer machines. An algorithm is "a recipe, an instruction set, a sequence of tasks,"[4] used to solve a particular problem or to achieve a particular calculation. Or as Google describes it, "algorithms are the computer processes and formulas that take your questions and turn them into answers."[5]

At the heart of this algorithmic architecture is the processual unfolding of time, and the rhythm of digital processing. As aptly summarized in the opening lines of *Media Infrastructures and the Politics of Digital Time* (2021), an edited volume by Axel Volmar and Kyle Stine,

> All machines, whether mechanical, electronic, or symbolic, are in a crucial sense time machines. They pattern the movement of mechanisms, the flow of electrons, or the operations of symbols to meet temporal demands such as synchronism, succession, repetition, and pace. Media technologies thus constitute not only *material* infrastructures, as has been a watchword in recent media theory, but also *temporal* infrastructures, architectures, and systems — materialities designed in and as time.[6]

1 Benjamin H. Bratton, *The Stack: On Software and Sovereignty* (Cambridge, Massachusetts: MIT Press, 2016), 5.

2 See for instance Lisa Parks and Nicole Starosielski, *Signal Traffic: Critical Studies of Media Infrastructures* (Urbana; Chicago; Springfield: University of Illinois Press, 2015).

3 Ed Finn, *What Algorithms Want: Imagination in the Age of Computing* (Cambridge, Massachusetts: MIT Press, 2017), 5.

4 Finn, *What Algorithms Want*, 17.

5 Quoted in Finn, *What Algorithms Want*, 17.

6 Axel Volmar and Kyle Stine, eds., *Media Infrastructures and the Politics of Digital Time* (Amsterdam: University of Amsterdam Press, 2021), 9, original emphasis.

This issue of *Kunstlicht* focuses not only on algorithms, but specifically on *algorhythms*, highlighting the temporal nature and order of technology through artistic interventions. The authors and artists featured in this issue specifically address the intersection between time and technology. Through their artworks and writings, we tune into the time of our bodies, the time of the internet, and to the histories and futures of our worlds.

The issue takes as a starting point the concept of 'algorhythms,' first proposed by Shintaro Miyazaki in the early 2010s. Miyazaki is a media and design scholar and experimental media designer who is trained in the German tradition of media studies (*Medienwissenschaft*). This sensitivity to time and to computers as time-machines has long been a focus within *Medienwissenschaft* through scholars such as Friedrich Kittler and Wolfgang Ernst and through methodologies such as media archaeology. Scholars working in this tradition pay special attention to the histories of media design and to technical investigations of the inner workings of machines.[7] In line with this mode of intellectual inquiry, Miyazaki proposes listening, sensing, and playing with algorithms, to literally make sense of the temporalities and rhythms created by algorithmic procedures. Through a series of playful experimentations, he argues for the cultivation of 'algorhythmic sensitivity.'[8] This sensitivity allows us to recognize how algorithms, in their growing ubiquity in digital life, perform in different ways, and are "bound to time and embody different types of timing."[9] In 2010-2011, Miyazaki collaborated with programmer Michael Chinen in *Algorhythmic Sorting*, where they turned sorting algorithms into visualisations and sound art. Sorting algorithms like bubble sort, merge sort, heap sort, quick sort, among others, are rendered into audible sounds and visible colourblocks. Through these short video pieces, Miyazaki slows down the techno-mathematical dimensions of signal processing into a phenomenological experience of sound, sensitizing his viewers to the hidden rhythms of contemporary digital and data-based infrastructures.

While certain rhythms are imperceptible to human senses, some algorhythms have long been distinctly audible, a companion soundtrack to digital life. I remember the noise out of my high school computer room as fingers raced across keyboards during QWERTY typing tests. I remember the singing tune of the dial-up connection of my 56K modem as the internet first arrived in my childhood home, whirring through the telephone line. The "uh-oh" of ICQ message notifications, the MIDI-ringtone of Nokia mobile phones... and the vibrating buzz renders the 'silent mode' of our phones not so silent after all. These sounds offer brief moments of synchronization between our bodies and that of the machines, as we experience corporeally the interaction with digital

7
See for instance a detailed analysis in Jussi Parikka, *What Is Media Archaeology?* (New York: John Wiley & Sons, 2012).

8
Miyazaki is inspired by Karen Barad and Donna Haraway's work, and advocates a diffractive approach to computational culture: "As a diffractive approach for understanding computational culture, algorhythmics not only looks for interesting patterns across computer science (algorithms) and real-world phenomena (rhythms), but also includes thinking about how to render these often unperceivable processes into sensible phenomena. In this way, it involves bridging research fields where technical measurements are essential with those where human perception and cultures are examined." Shintaro Miyazaki, "Algorhythmics: A Diffractive Approach for Understanding Computation," in *The Routledge Companion to Media Studies and Digital Humanities*, ed. Jentery Sayers (New York; London: Routledge, 2018), 244.

9
Miyazaki, "Algorithmics," 244.

devices. Yet much of the digital processing happen behind-the-scenes, outside of our conscious perception, at speeds beyond our phenomenological perception. Following Wolfgang Ernst's media philosophy in *Chronopoetics* (2016), computers have their own internal clocking systems that allow for encoding/decoding processes to be synchronized and for machine operations to run in connection with one another, as an internal rhythm emerges as part of this processing.[10] These algorithms and algorhythms operate in the background much like the ticking of a clock, in our smartphone, on our apps, and in the signal traffic of the internet,synchronizing as devices communicate with each other, but many a time out of sync with our lived bodies.

As Miyazaki aptly points out, rhythm is "an effect of ordering and measurement."[11] By rendering unperceivable phenomena into sensible sounds, these experimentations act as a first step in creating a bridge between human senses and posthuman machine performance, and help us understand the ordering effects of algorithmic incursion in our daily lives. This issue of *Kunstlicht* then is also about listening to algorhythms and to their political reverberations in various registers. In *Vistas of Modernity: decolonial aesthesis and the end of the contemporary* (2020), Rolando Vásquez introduces the methodology of listening as a decolonising gesture. In the practice of listening, we remember ourselves in relation to those that precede us, in an effort to interrogate and challenge the institutional, structural, and epistemological legacies of colonialism and capitalist extractivism.[12] This implies "an awareness of a temporal positionality, an awareness that we could not be alive if we were not in this net of relations that is sustaining us, the Earth that is sustaining us, the community that is sustaining us, and those that preceded us without whom we wouldn't be here."[13] Listening is a humbling practice that allows us to open up our senses and to be receptive to the worlds around us. Paying attention to rhythms of the digital allows us to excavate and speculate upon timelines beyond our current ones, such as deep-diving into the history of the internet, or projecting our imaginations into the future. It also brings into focus the politics of inhabiting the current times, as we ponder upon the continuing effects of capitalist demands on our lives and on Earth.

Drawing from these concerns, this issue of *Kunstlicht* poses the following questions around algorhythms: How might we tune our senses to the architecture of data and algorithmic processes that seemingly elude our conscious perception? How do artistic means remediate our experience of technology through texture, sound, and materiality? How does the durational experience of living with technology alter our senses of and affective relations to time? The selected essays and curated artworks all respond to the above questions in specific ways.

10
Wolfgang Ernst, *Chronopoetics: The Temporal Being and Operativity of Technological Media* (London: Rowman & Littlefield International, 2016), 63.

11
Miyazaki, "Algorithmics," 244.

12
In earlier works, I have analyzed these legacies as part of what I term the "necropolitics of digital culture." See Evelyn Wan, "Laboring in Electronic and Digital Waste Infrastructures: Colonial Temporalities of Violence in Asia," *International Journal of Communication* 15, (2021): 21.

13
Rolando Vázquez, *Vistas of Modernity: Decolonial Aesthesis and the End of the Contemporary* (Amsterdam: Mondriaan Funds, 2020), 156-157.

The issue is arranged under three sub-sections. The first sub-section investigates affective and corporeal entanglements with time and technology through two artistic projects by Natalia Sánchez-Querubín and Sabine Niederer, and Nicole De Brabandere. The second sub-section studies the histories and presents of digital infrastructures, with Ecological Gyre Theory (Jaxon Waterhouse and Chantell Mitchell) and Rosa Wevers. The third sub-section looks at alternative rhythms, with Anabelle Lacroix's discussion of her curated exhibition *Freedom of Sleep* (2021) in Fondation Fiminco in France, and a special manifesto by Shintaro Miyazaki, reflecting on where the concepts of algorhythm/algorithmics and his experimentations have taken him over a decade later.

AFFECTIVE AND CORPOREAL ENTANGLEMENTS WITH TIME AND TECHNOLOGY

> *"Affect is a vector of unqualified intensity seeking future actualization; it is a vehicle from one dimension of time to another."* — Patricia Clough, "War By Other Means: What Difference Do(es) the Graphic(s) Make?"[14]

We begin with the future, with postcards written by machines from a world after the Anthropocene. "*Turning to the birds*: Walking with climate fictions" reflects on a project on climate fictions produced by machine-learning algorithms trained on science fiction narratives. Participants listened to these future stories during a forest walk, noting the temporal disjunction between the experienced present before their eyes and the speculative future scenarios described in the audio works. Interlacing these AI-written narratives with theory and reflections, authors Natalia Sánchez-Querubín and Sabine Niederer characterise their artistic research as an "art of noticing."[15] The act of noticing necessitates a re-orientation towards climate change. They ask us to contemplate the incommensurability between the present and the potential futures-to-come.

I offer the quote above from Patricia Clough to highlight the affective nature of experiencing these forest walks, and to note the future-oriented nature of affective experiences. These stories, reproduced in parts in their essay, are like mini episodes of time-travels. In their machinic remixing of published fiction in the past for the future, they invite us to reimagine and rearticulate our relations with the ongoing climate crisis not in an imagined future tense, but through the past and the lived present.[16]

Nicole De Brabandere's essay, "Co-composing the Perceptible across Affective, Painterly and Computational Generativities," demonstrates Clough's comment on how affect functions as a "vehicle from one dimension of time to another."[17] Making use of affective inquiry and artistic research methods, the essay dives into the process of remediating DeepFake portraits created by the Generative Adversarial Network (GAN) of ThisPersonDoesNotExist.com into photorealistic paintings. The microtemporal creation of these images by AI is only to be contrasted by the intensive time investment in De Brabandere's re-renderings, almost a form of time-travel in itself. By studying these images in excruciating detail, the artist unravels the intensifications, dissolutions, distortions, and resonances within these GAN images that betray their algorithmic origins. And in her meditative writing style, she produces an alternative rhythm of prose, capturing what Adi Kuntsman has termed "reverberations" in digital affect—an unfolding of intensities amongst her paintbrush and her paints, the pixels and her keyboard, in a co-composition of the painter, the observer, the writer, and the theorist.[18]

This section on affective and corporeal entanglements are accompanied by sculptural works "The Waiting Room" (2017) and "The Floor is Lava" (2019) by artistic duo Sander Breure and Witte van Hulzen. Time stands still for these not-quite-human figures, suspended in their postures, gestures, and expressions. A mis-buttoned shirt, a forlorn gaze, danging earphones playing soundtracks unknown: what are they waiting for—the doctor, the train, or the apocalypse? Set in rooms in various states of decay and ruin, the installations invite us to join the figures in contemplation, quietly ruminating on our earthly existence and the thin veil between liveness and death.

HISTORIES AND PRESENTS OF DIGITAL INFRASTRUCTURES

> *"In the wake, the past that is not past reappears, always, to rupture the present."* —Christina Sharpe, *In the Wake* (2016)[19]

To situate this section, I would like to draw from Christina Sharpe's reflections on temporality in *In the Wake: On Blackness and Being* (2016). Writing on the aftermath of slavery, and the living present of the historical realities whose effects are felt very much in the now, Sharpe challenges readers to recognize the durational effects of past historical traumas. The wake, as she defines, is the disturbance of water left on the surface by a travelling slave ship, the enduring ripples that continue as forms of violence against black bodies. The wake is also the time and place for mourning, for keeping watch with the dead. Staying and inhabiting the place of the wake is a form of political consciousness, and writing in the wake is a form of care work for ongoing effects of slavery and other forms of colonial extraction.

14 Patricia Clough, "War By Other Means: What Difference Do(Es) the Graphic(s) Make?," in *Digital Cultures and the Politics of Emotion: Feelings, Affect and Technological Change*, ed. Athina Karatzogianni and Adi Kuntsman (Houndmills, Basingstoke, Hampshire; New York: Palgrave Macmillan, 2012), 23.

15 Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton, New Jersey: Princeton University Press, 2015), 17.

16 This reorientation in temporality has long been advocated by indigenous scholars. See for instance Kyle Whyte, "Indigenous Climate Change Studies: Indigenizing Futures, Decolonizing the Anthropocene," *English Language Notes* 55, no. 1 (2017): 153–62.

17 Clough, "War By Other Means," 23.

18 Adi Kuntsman, "Introduction: Affective Fabrics of Digital Cultures," ed. Athina Karatzogianni and Adi Kuntsman (Houndmills, Basingstoke, Hampshire; New York: Palgrave Macmillan, 2012), 1.

19 Christina Sharpe, *In the Wake: On Blackness and Being* (Durham; London: Duke University Press, 2016), 9.

Both essays from Ecological Gyre Theory and Rosa Wevers can be situated in the consciousness of the wake, in their attentiveness towards the violent extractivist practices of mining and colonial slave trade. In highlighting the continued legacies of colonial appropriation, both pieces demonstrate the lingering presence of these politics in our digital networks, echoing Sharpe's observation that the past comes back not merely to haunt but to rupture the present. The two pieces of artworks analysed are respectively Simon Denny's *Mine* (2019), installed in the Museum of Old and New Art (MONA) on the occupied territories of nipaluna/Hobart in Tasmania, Australia, and Tabita Rezaire's video art *Deep Down Tidal* (2017). While *Mine* evokes the politics of Earth and addresses the extractivism of data mining as well as minerals for technological devices, *Deep Down Tidal* turns our attention to the trans-oceanic internet cables and critiques these networks, which mirror colonial trade routes, as electronic colonialism. Both these artworks and the ensuing analyses by our authors confront us with the ongoingness of colonial legacies, urging us to care about and challenge the ways we are embedded in digital infrastructures.

Paired with these essays is Congolese artist Jean Katambayi Mukendi's *Afrolampe* series (2016-ongoing). The raw materials featured in these works form a nod to the mineral mining industries of the Democratic Republic of Congo that support the connectivity of the world. Each drawing, done in ballpoint pen, reimagines the circuitry of lightbulbs, and transforms this mundane household object into an object of reflection. Does electricity signify technological progresss and development, or is it an instance of electronic colonialism?

ALTERNATIVE RHYTHMS

> "The body? Your body? It consists in a bundle of rhythms." — Henri Lefebvre and Catherine Régulier, "The Rhythmanalytical Project."[20]

The final section of this issue looks at rhythms and returns to the corporeal body in its relationship to time and technology. One is reminded of the rhythmanalysis project spearheaded by Henri Lefebvre in the 1980s, and his central premise that non-human linear time of modernity has taken over the natural cyclical rhythms of everyday life. Rather than falling in line with a dominating rhythm like that of capitalist production, he is in favour of the restoration of the "total body" that is capable of appreciating a diversity of rhythms, whether of places and cities, of TV and media, or of Earth and nature.[21] We can view the two essays in this section as responses to the dominating rhythms of capitalist life and of digital infrastructures.

"*Freedom of Sleep*: A Practice of Rhythming Otherwise" focuses on an interdisciplinary exhibition that proposes the desynchronization of the body, freeing it from the norms and control of capitalistic demands such as productivity, efficiency, and attention. In her essay, Anabelle Lacroix, curator of the exhibition, takes us through her philosophical inspirations and highlights several artworks showcased. Through visual, sonic, and performative practices, these artistic works question our relationship to sleep and labour, such as by challenging work schedules and Fordist factory logic, instituting napping as resistance, or by imagining a world without sleep. Lacroix argues that desynchrony is a practice of rhythming otherwise, that opens up space for corporeal agency at the intersection of the social and the technological, so as to resist the normalizing power of institutional and cultural rhythms.

Rounding up our issue is Shintaro Miyazaki's manifesto, "Counter-Algorhythmics as Prefigurative Dances of CommOnism." In it, he reflects on his positioning in *Medienwissenschaft*, and proposes the urgency of considering the political potency of the concept of algorhythms and algo-rhythmics as a dance of resistance to the current technological regime. His concept of algorhythmics was largely techno-aesthetic in nature, but in this new conception, he attempts to bring the political potentials into focus. As the book-end to this issue, I hope that his work would inspire a return to the politics of the body, and emphasise once again the agency of our lived bodies in the planetary Stack of digital culture.

In the midst of algorhythms, let us dance together and forge alternative futures.

Evelyn Wan is Assistant Professor of Media, Arts, and Society at the Department of Media and Culture Studies at Utrecht University. She teaches cultural theory, philosophy of science, performance practices, and cultural research methodologies. Her work on the temporalities and politics of digital culture and algorithmic governance is interdisciplinary in nature, and straddles media and performance studies, gender and postcolonial theory, and legal and policy research.

20 Henri Lefebvre and Catherine Régulier, "The Rhythmanalytical Project," in *Rhythmanalysis: Space, Time and Everyday Life*, trans. Gerald Moore (London: Continuum, 2004), 80.

21 Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Oxford; Cambridge, Massachusetts: Blackwell Publishing Ltd, 1991), 384.

“AFFECT IS
A
VECTOR
OF
UNQUALIFIED
INTENSITY
SEEKING
FUTURE
ACTUALIZATION;
IT IS
A VEHICLE
FROM ONE
DIMENSION
OF TIME
TO ANOTHER.”

Patricia Clough, “War By Other Means: What Difference Do(es) the Graphic(s) Make?”

TURNING TO THE BIRDS
WALKING WITH CLIMATE FICTION

Natalia Sánchez Querubín, Sabine Niederer

> It's cold outside. I curled up on the bed again, no wind, no stars, less than an hour from the first heavy rain of the year. I'm so close to the lake and the creek, maybe twenty yards, and I'm thinking about paddling back out there on the trail, my heart beating like a big drum, and I'd be lying if I said it's not the worst thing I've ever seen. It'd be an adventure, everything — the mountains, the creek, the trees, the animals — all gone.

The fragment above belongs to one of twelve machine-authored diary entries from a future deeply affected by climate change. Together, these stories, like "postcards from the post-Anthropocene," are set in altered landscapes and present glimpses of the inner turmoil of a narrative voice living in a world seemingly no longer centred around people. The mountains, creek, trees, and animals that once were familiar to the narrator are all gone. Look at your surroundings. We hope that the trees you love are there.

> The house was fully engulfed in trees, with at least one hundred metres of back garden, more than fifty on the front garden, and bushes and long tumbledoirs all waving in Wimbledon Street. It was absolutely a different atmosphere than the, er, drained-out town, its demographics a shock. But what could I do? I had only half an energy for the mission I'd set out: to find a way inside the house and shut my eyes — and double my odds.

Now, picture the following scene. You are in a forest on the outskirts of Amsterdam. It's a summer day. People walk their dogs, have a picnic on the grass, and ride their bikes. Through your headphones, a woman's voice tells you about a house fully engulfed in trees — a diary entry being read aloud. You are participating in a sound walk so you can *notice* the forest around you in other ways. You look at the trees. What would a house engulfed in trees look like? Would you notice it if you passed by it? The woman in your headphones is looking for someone in this house, an older man. He is not doing well. The people you encounter on your walk suddenly seem like echoes from a distant time. You see them but you cannot hear them, and they no longer exist in the world described in the story. The voice in your headphones is unsettling. She is warm, but her choice of words is odd, her sentences seem scrambled at times. The story ends and the familiar sounds return to you (to your relief), yet the space, this forest, seems different.

We created these sound walks for a series of forest listening workshops associated with *Critical Zones: Observatories for Earthly Politics,* an exhibition by Bruno Latour and Peter Weibel at ZKM Karlsruhe.[1] The organisers invited artists and researchers to propose ways for cultivating an interdisciplinary practice of "listening" to forests and reflecting on their role in critical zones.[2]

1 Bruno Latour and Peter Weibel, "Critical Zones: Observatories for Earthly Politics," *ZKM Karlsruhe,* 2021, https://zkm.de/en/exhibition/2020/05/critical-zones.

2 Jonathan Gray and Birgit Schneider, "Ways of Listening to Forests," *Public Data Lab*, 2021, http://forestlistening.publicdatalab.org/.

According to anthropologist Anna Tsing, the art of noticing is a necessary survival mechanism to move on from the anthropocentric belief in progress that has caused the current climate crisis. *Turning to the Birds* is an artistic research experiment that brings together fiction, computer modelling, and noticing. To write the diary entries, then made into audio stories, we used climate fiction novels as training data for machine learning. In workshops, we used walking in forests while listening to these stories as a technique for noticing. Participants brought mobile devices and headphones and selected one of the workshop's 'sound sequences' to listen to during a walk in nature, be that in a garden, nearby park, local forest, or another green space of choice. After the soundwalk, participants reconvened online to reflect on their experiences in sensing and making sense of forests with devices, techniques, and our bodies. The goal was to open conversations about noticing by grounding stories about the future in present landscapes, thus overlapping temporalities and ways of being.

Stories that fold together the present and the future are all around us. Climate fiction, which is a subgenre of science fiction, is dedicated to articulating life set in a future deeply affected by climate change. For example, when talking about climate fiction, Kim Stanley Robinson, author of *The Ministry for the Future,* says: "Imagine that you're in the future. You look around at a changed world [...] Then you look back at your own time, seeing it as if it were already history."[3] Global climate catastrophe as imagined in Hollywood movies remains a risk, made perceptible through special effects. Predictive technologies permeate climate science too, as algorithms use data about the present to model possible scenarios that are communicated to the public. They too invite us to look around a changed world, through graphs and charts and scenarios of flood and drought. What will happen to the present landscapes if we do not change our ways? What will be left of the world for future generations? And, which resources will become scarce, and when? Climate fiction and models (created with literary and computational devices) collapse the temporalities of what could happen with what is already taking place. For certain humans and non-humans, climate catastrophe is already a reality. The 'art of noticing' also plays with temporality, and involves techniques and probes to help tune the senses to our surroundings, grounding our wandering minds and eyes in the here and now. As we explain below, noticing may come from tuning into different scales in space (e.g., global or focused noticing) and privileging certain perspectives.[4] In *Turning to the Birds*, noticing involves tuning into overlapping temporalities and perspectives through stories (present and future, machine and human).

Writing with machines

The collection of diary entries was written with the help of Open AI's GPT-2, which stands for Generative Pre-trained Transformer. Generative machine learning models like GPT-2 learn to predict and anticipate the

3 Kim Stanley Robinson, "Why COP26 invited a science fiction writer," *Bloomberg*, October 23, 2021, https://www.bloomberg.com/news/articles/2021-10-23/-and-now-we-recognize-the-speaker-from-the-future.

4 Maya Livio, Jen Liu, Kristin Dew, SzuYu Liu,and Patrycja Zdziarska."Methods for Noticing Workbook," 2019, first implemented at *Designing InteractiveSystems Conference: DIS '19,* https://files.cargocollective.com/c531133/Methods-for-Noticing-Workbook_May-2020-.pdf.

style of an output based on the textual data used for training them, without a specific task in mind. Prompt GPT-2 with a sentence and it predicts the next words, just as your cell phone might suggest words to finish your text message. GPT-2 was pre-trained on a dataset of 8 million web pages, based on "pages which have been curated/filtered by humans — specifically, outbound links from Reddit which received at least 3 karma."[5] We fine-tuned the model with 1 million characters of climate fiction text. The dataset consists of twenty cli-fi novels, which includes works by Margaret Atwood, Ursula K. Le Guin, Peter Heller, Michael Crichton, and Ian McEwan. GPT-2 learned how to write in the style of these climate fiction authors.

Artistic uses of artificial intelligence tend to marry speculative questions with (critical) experiments in automating creative writing and image-making. In the tradition of science fiction, artists may speculate about the capacity of artificial intelligence to behave like human beings, which raises ethical concerns. Science fiction is also preoccupied with how intelligent machines may perceive their creators — a matter of seeing ourselves through machine perspective. If humanity goes extinct and synthetic beings inhabit the earth, will they pity us? In apocalypse narratives, intelligent machines see humans as flawed and inferior and turn against them. Other times, humans trust machines' advanced capacities and depend on them for answers. In fiction, displacing the human perspective in favour of narrating through the eyes of a non-human is a narrative device for 'noticing' and de-familiarising our own stories.

"In a substantially altered world, when sea-level rise has swallowed the Sundarbans and made cities like Kolkata, New York, and Bangkok uninhabitable," author Amitav Ghosh wonders, "when readers and museumgoers turn to the art and literature of our time, will they not look, first and most urgently, for traces and portents of the altered world of their inheritance?"[6] He paints an image in which future generations, living in a world heavily impacted by climate change, turn to the art and culture of our time to gauge how we dealt with and reflected on our changing climate. Indeed, what will the stories of today say about us? Ghosh fears our time will appear as the age of derangement. Inspired by Ghosh's warning of a "crisis of imagination," we set out to look back at our current climate stories using machine learning and build on them to create new climate future imaginaries. How will this collection of climate fiction novels, with their familiar tropes, appear through the eyes of machines, thus mirrored through their own rhythms and vision?

Machine vision is productive in different ways. When applied to big data sets, it reveals patterns and connections that are difficult to detect and may be unexpected. Sometimes it defamiliarizes, like in science fiction, when we are confronted with artificial eyes.[7] Indeed, how do the machines see the world? GPT-2, the model we trained with cli-fi, can learn from data (in this case, existing cultural imaginaries of climate change) in an unsupervised manner. Based on its learnings, the algorithm can create new outputs that open a window of possibility and distortion. GPT-2 needs a prompt to generate new text. Since much speculative fiction works with the literary format of the diary, we fed dates to the machine, but not a year. It started to tell us what had happened that day, in the first-person. We repeated this process until we had built up an extensive range of days. We found ourselves asking this oracle machine to send messages from the future, at least based on what it had learned from our initial collection of cli-fi novels. We checked whether the output did not come directly from its training materials, the cli-fi novels. Instead, the text, as we explain below, while mostly coherent, included words choices and images that gave away its non-human origins; we did not consider these errors but rather spaces to explore. As a next step, the active curation, editing and post-production of the materials became significant.

We then started working with writer and editor Janine Armin, who edited the texts and lent them her voice in the audio recordings. When starting the editing process, Janine was struck by how good the AI was at writing fiction.[8] Being a climate fiction novelist herself, she expressed a brief sting of jealousy even. The writings of the AI had no restrictions, so it seemed. The AI also demonstrated an innovative approach to language, also giving a voice to non-human animals and objects. For instance, one story describes how a baby doll's face is being watched by thousands of tiny birds. In the story below, floating dartboards are the abandoned props once "needed" by humans for their entertainment. Now, after the hopeful outcomes of a convention of sorts ('Bon Accord'), they have become obsolete. Potentially, society no longer needs to rely on such props in the future, as it becomes more sustainable. This sounds like a more utopian angle in sci-fi that the AI might have observed in the training materials. Janine states:

> When you are writing sci-fi, you are loading a narrative by using words that forebode a particular idea or situation. And so, reading the story with that structure in mind, [...] everything becomes detritus. The utopian idea seems to be that we have learned to become sustainable and at the same time, everything has become fused, and thus meaningless. When you read it, it makes sense as something that could happen.

To continue the collaboration with AI to include design illustrations to accompany our stories, we worked with a text-to-image model (called the Attentional Generative Adversarial Network) that can synthesise fine-grained details of an image by paying attention to the relevant words in a text. The machine-created images were used

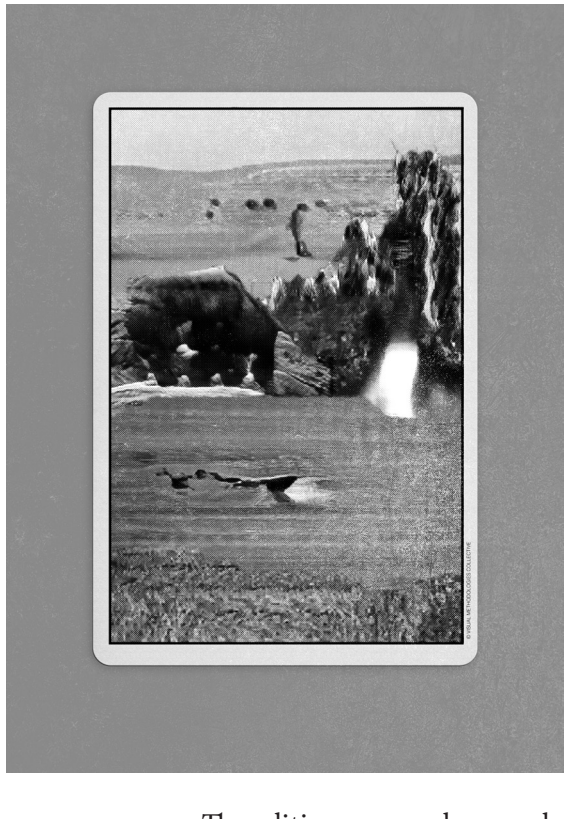
5 Reddit is an American social news aggregation, web content rating, and discussion website. Its formula has been mostly the same since its launch in 2005: aggregate links, images, and text posts in a format that fosters active conversation about a wide variety of topics. As in other social media platforms, users have the possibility to react to content shared by other users. On Reddit, content can be downvoted (usually when it is considered off-topic or simply unfind) or upvoted (when users find it helpful or thought-provoking). Reddit karma is the sum of all of the upvotes and downvotes on a person's post, comment, or Reddit profile. This metric was used by the authors of GPT-2 as "an heuristic indicator for whether other users found the link interesting (whether educational or funny), leading to higher data quality than other similar datasets, such as CommonCrawl." Radford et al. "Better Language Models and their Implications", *OpenAI,* blog, 2019, https://openai.com/blog/better-language-models/.

6 Amitav Ghosh, *The great derangement: Climate change and the unthinkable* (Chicago: The University of Chicago Press, 2016), 11.

7 A popular present example are the psychedelic images generated by Google's DeepDream model. The program allows looking into different stages of a machine making sense of images. The distorted versions of animals and humans that it produced were not seen as errors to be corrected but as strange spaces to be explored. See: Arthur I. Miller, 2019, *The Artist in the Machine: The World of AI-Powered Creativity,* MIT Press.

8 The reflections on the editing process are from an interview with writer and editor Janine Armin by Andy Dockett in 2021 (not yet published).

by designer-researcher Carlo De Gaetano, to make collages to accompany the stories (see image below).[9]



↑fig. 1 Carlo De Gaetano and Attn-GAN, *The Floating Dartboard,* digital collage, 2021.

The editing process became less about correcting the AI, and more about pacing the text. The edits made for the sake of legibility entailed streamlining pronouns, so it would be easier to follow who was being referred to. Other non-existent English words and metaphors were retained, to keep the voice of the machine still shining through. Janine: "In terms of language, I am interested in the way in which English can be expanded to include different voices." Thus, the text includes phrases like 'clapering lawns' and 'flagging trees' and even new words like 'tumbledoirs.'

Walking with cli-fi

It is important to avoid approaching climate imaginaries as ready-made answers to questions or futures to be 'consumed' passively. We do not strive to be 'interpassive' (as discussed by Slavoj Žižek), which would mean outsourcing the creative process to machine learning while we lean back.[10] It is also not literary criticism that uses software to analyse themes. Instead, we are co-creating with the machine, writing and making images with algorithms that we make our own by curating, editing, giving it a human voice, and grounding in space.

9 These collages were translated into a tarot deck, a wall tapestry, and album art (for the sound stories as presented on Spotify and Vimeo, and have been shown at various conferences and venues, including Listening to AI, ARIAS Amsterdam (2020), Deep Cities 3 Conference in Lausanne (2021), and Gogbot Café Eindhoven (2021).

10 Slavoj Žižek, "The interpassive subject," *Centre Georges Pompidou, Traverses*, 1998, https://www.lacan.com/zizek-pompidou.htm.

Machine learning is used as a tool to expand our imagination and notice. This is where walking comes in.

The workshops considered walking with stories as an engaged noticing practice. As a way of noticing, 'forest bathing' usually involves tuning in with the present, as an act of mindfulness. One may tune in to the local sounds, attend to the small textures of the trees and be present. In our soundwalks, noticing is disconnected from the present, as the soundscapes speak of a different time. That stories were co-authored with a machine was a relevant part of the experience, which was made explicit to participants. The stories, with their unfamiliar metaphors and word combinations are thus points of exploration between the human and machine sensibilities. In the act of listening and walking, both human and machine rhythms come together: stories written with machines, edited and narrated by humans, and experienced through walking.

> If, as walking researchers contend, walking is a way of being in place, then walking enables researchers and research participants to tune into their sensory experiences. Walking researchers interested in sensory inquiry sometimes isolate a sense on a walk — for example, a soundwalk — or they consider the ways that the walking body is immersed in a sensory experience of place, such as the texture of feet touching the ground, air brushing against cheeks, or the smells of city streets.[11]

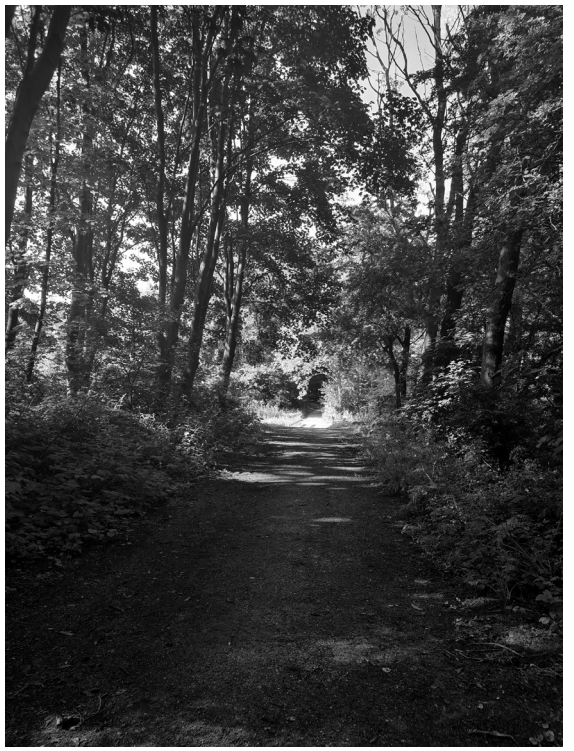
Concretely, we were interested in learning how the stories affect people's sensing and making sense of the green space around them.

> The house was fully engulfed in trees, with at least one hundred metres of back garden, more than fifty on the front garden, and bushes and long tumbledoirs all waving in Wimbledon Street.

Did our climate stories aid listeners in noticing and engaging with nature? And, can soundwalks help make the experience of possible futures our own? A house engulfed with trees — says one of the people in the workshop — reminds them of a fantasy book in which a new world can be entered through a hidden magic door. What is inside the house engulfed in trees? Who lives there? Is the house in ruins because the world is in crisis, or is it because we actually live in a different way? The town, however, evokes a life that seems to make the main character unhappy. The house engulfed with trees might be a better place, a refuge. This same person wonders: is my home in the town or in the engulfed house? Are the bushes and trees waving at me right now in this forest because they welcome me? Or is nature deceiving here? Is the engulfment comfortable or suffocating?

Another participant listened with just one earbud tuned into the soundwalk, leaving one ear open to sense the surroundings. She could experience her garden with its own soundscape: urban sounds such as passing cars

11 Stephanie Springgay and Sarah E. Truman, *Walking Methodologies in a More-than-Human World: Walking Lab* (London: Routledge, 2019), 4.



↑fig. 2 Natalia Sánchez-Querubín, *Houses engulfed by trees,* digital photography, 2021, Spaarnwoude, NL. Pictures taken during a soundwalk as part of the workshop *Listening* to Forests (ZKM, June 2021)

and conversation mingled with bees and other insects buzzing around, while simultaneously those surroundings were overlaid by the sound walk. She found a balance between being and noticing here and elsewhere simultaneously. Another participant remained indoors to dodge a rainstorm and used the sound walk to travel to nature from his armchair, engaging all the senses in 'forest bathing' while seated next to a large Monstera plant in his studio and looking out the window at the plants and trees in the courtyard. Yet another participant, reflecting on how the sound walk enabled practices of noticing, said that the sound walk prompted her to think deeper about the situatedness of the forest she was exploring and discover what was specific about that very place. She described how she felt enabled to see the forest both *through* the lens of the sound walk and *in contrast* with the world presented in the audio work.

The reflections of the workshop participants are, of course, not scalable to decide how climate fiction stories such as the ones we wrote with algorithms provide meaningful new ways of engaging with climate change. Nevertheless, participants commented that they appreciated being able to "sense nature in new ways." The sound walks allowed them to engage their senses in parallel: experiencing both the actual landscape and the narrated landscape of the sound walk. The sound landscapes include references to houses engulfed by nature and offer strange metaphors that emerge from having the world of climate fiction reinterpreted by machine learning. New strange sites overlap with the familiar scenes of people's neighbourhoods and parks. One is then neither here nor there.

At the current stage, the project relies on a dataset that considers mostly western climate fiction novels. The next step will be to "pluralise" and diversify our collection of climate fiction and move beyond this Western and mostly Anthropocentric perspective on climate change. We want to include a plethora of climate imaginaries that blend the topic of climate and nature through fiction and symbolic practices; genres such as indigenous futurism and solarpunk present distinct ways of knowing, imagining, and performing possible futures. Which kind of climate futures will the machines learn and propose when trained with diverse cultural perspectives?

Acknowledgements
The climate fiction stories in the series *Turning to the birds* and *All Gone* by the Visual Methodologies Collective are available as podcasts on Spotify. Andy Dockett trained the algorithms, writer and editor Janine Armin edited and narrated the stories for *All Gone*. The tarot card collages accompanying each episode of *All Gone* were made by Carlo De Gaetano, using text-to-image algorithms. The forms in which we present our research output are a topic of exploration and experiment. We are currently working with artists, artistic researchers, choreographers, dancers, a 3D-knitting lab, an art & technology lab, and students from digital design and storytelling to build new avenues of creative collaboration with partners (i.e. adding intergenerational, indigenous and interspecies perspectives) and pluralize the imagination of life with a changing climate. The Climate Futures programme is kindly supported by CoECI, the Amsterdam-based Centre of Expertise for Creative Innovation (www.coeci.nl). The Listening to Forests workshop materials and soundwalks are available through http://forestlistening.publicdatalab.org/. The soundwalks were narrated by Renee-Marie Pizzardi.

Natalia Sánchez Querubín, PhD, is Assistant Professor and Coordinator of the New Media and Digital Culture MA program at the University of Amsterdam. She works on digital media research and the intersection of digital media with health stories and social issues such as climate change.

Sabine Niederer, PhD, is professor of Visual Methodologies at the Amsterdam University of Applied Sciences, where she works on visual, digital, and participatory research applied to social issues. She is also programme manager of ARIAS, platform for artistic research in Amsterdam. www.visualmethodologies.org; https://arias.amsterdam

CO-COMPOSING THE PERCEPTIBLE ACROSS AFFECTIVE, PAINTERLY, AND COMPUTATIONAL GENERATIVITIES

Nicole De Brabandere

The painted images presented in this text experiment with renderings generated by the Generative Adversarial Network (GAN) of the website ThisPersonDoesNotExist.com. This GAN creates images that sometimes achieve the photographic likeness of a person but also make visible computational patterns that propose alternate organizations of form and ground, surface and substance, materiality and immateriality. Furthermore, images that initially appear to be objects signifying the real, upon close examination, have no single referential origin but are rather organized in strange configurations that traverse the photographic and computational. Through the careful study afforded by the process of painting these images, the appearance of referential figuration belies alternate generativities, where, for example, the appearance of depth-of-field or over-exposure is revealed as the substance of hair or cloth. While GAN renderings are generated in milliseconds, painting them offers an expanded temporality with which to engage their heterogeneous and transversal constitution. This, in turn, reconfigures the sense of facticity (and corresponding affects pitting subjects against captured objects) conjured by photorealism.

Alongside the painting process, I forward a series of findings and beginnings. Beginnings describe modes of entry for developing a painting practice with the machine-rendered image while pulsing new emphasis and vantages of unknowing, possibility, affinity, and impulse. Findings mark variations of emergent perceptibility that coincide with the speculative logics of the machine-generated image and articulate events of emergent corporeality that correspond with changing rhythms and tendencies of seeing. As the process unfolds, findings and beginnings bleed into one another, mark holding places of suspended intelligibility, and expand space-times for the speculative generativities of GAN imagery to appear. Findings and beginnings thus propose a mode of co-composition that traverses 1) the computational image, 2) inhabited tendencies of recognition, and 3) the plastic, cumulative technicity of painting. Between and across findings and beginnings, painting is rendered as a processual and speculative proposition that is co-composed through a sense of situated relation and felt duration.

Amidst the reconfiguration of tendencies of photorealist recognition that accompanies the painting process, visual capture persists as a starting point as it provides a technical consistency that supports a processual ongoingness. This ongoingness is necessary as it allows the painting process to gradually and tentatively reveal how the computational image is organized between semblance and information, appearance, and probability. When embedded into an ongoing process, capture becomes a durational consistency that holds together multiple and divergent instances of intelligibility.

↑fig. 1 *ThisPersonDoesNotExist 01*, 2020–21, acrylic on canvas, 102 × 122 cm. Copyright, courtesy of the author.

In earlier writing, I refer to areas in the machine-generated image that destabilize the sense of likeness to photorealism as *soft spots*.[1] Soft spots signal irresolvable differences between the photographic and computational, which propose appearance-based logics that conjure speculative and experimental possibilities. Soft spots disrupt discourses of passing or imitation in which GAN renderings are often situated, as seen in the simulation works of *The Next Rembrandt*, in which a learning algorithm is trained to render Rembrandt-like variations. Joanna Zylinska (2020) suggests that such discourse cements a binaristic opposition between the "human" and the "machine," which is at once inaccurate (citing the long and varied history of human technology assemblages) and which forecloses the imaginative potential of thinking of the machine as being in co-composition with the human.[2] In the painting process, I emphasize soft spot generativity by avoiding painting the semblance of a face altogether since it so quickly absorbs machine generativities within a human-centric gaze.

While soft spots do appear on faces, they often appear most distinctly at the edges of forms or areas separating hair, cloth, ground, and skin. Here the architecture of the face gives way to forms that are often striking in their excessiveness and can sometimes pass for something that reminds of (but is much stranger than) baroque adornment. In their more-than-referential excess, these forms set in motion the notion and practice of composition as connective tissue that traverses the opaque and transparent, the proximate and parallel, the material and intangible, surface and substance, the directional and topographic, the perceived and the imagined.

As painting GAN renderings maintains an ontologically radical position in relation to photorealism, critical differences between objects and subjects, humans and machines, are reworked. Put otherwise, the painting process is driven by a dramaturgy of events of inseparability between speculative and seemingly referential appearances. Seeing is no longer directed towards the recognition of a single object of capture but is engaged in organizing possible and speculative appearances in flux. What is at stake becomes the generativity of the orchestration of differences and the kinds of

1 Nicole De Brabandere, "Machine-Generated Portraits as Impersonal Gestures," Proceedings of the International Symposium on Electronic Art ISEA: Why Sentience?, Montreal, Quebec Canada, October 13-18, 2020). Montreal (Quebec): Printemtps Numerique Canada: 477.

2 Joanna Zylinska, *AI Art: Machine Visions and Warped Dreams* (London: Open Humanities Press, 2020), 52–55.

inhabited rhythms they engender. The painting process is felt rhythmically as the double-take coincides with the doubling-back of painting with a brush. This rhythmic force intensively binds bodies, media, and techniques in movements that converge and separate, decipher and obfuscate, that distance and render intimate along increasingly varied lines of differentiation.

An important point is that the gesture to capture within the painting process is coupled with one that navigates opacity. Édouard Glissant's notion of opacity was developed through the study of creolization in language but also proposes a generative and ethical imperative that "protects diversity" within a broad range of relational ecologies.[3] Glissant states: in the opacity of relation, "all the threatened and delicious things [join] one another (without conjoining, that is, without merging)."[4] These are unities with interdependent variances, interactive totalities which are "not models but revealing echos-monde" or something akin to music.[5]

So, while not reproducible, these echos-monde are both singular and signal a mode of emergent intelligibility. In the process of painting the GAN rendering, we might identify echos-monde in the gradual exposure of new configurations of the more-than-referential with and alongside a photorealist aesthetic. Such echos-monde are inseparable from the rewriting of photorealist tendencies of recognition and unfold in a situated, non-linear dynamism. The relevance of time here is important as it lends a felt consistency with which to tend to and enlarge the "fragile" and "delicious" quality of this process as it unfolds. Here the life of the machine is felt in its correspondence with an ethico-aesthetic creative process. More specifically, it is felt as what Isabelle Stengers (2011) identifies as relevant for the "togetherness" of practices. Members of such practices "can be described as 'attached' to something that none of them can appropriate or identify with — a nonhuman — but that causes them to think, feel, and hesitate."[6]

In the GAN rendering, the major identifiability of photorealism coincides with heterogeneous minor modes of identification that concretely demarcate events of emergent intelligibility. These events are important as they cause thought and hesitation regardingin regard to the location of intelligibility, which includes the human but is also technologically situated. Such events take effect in the painted composition as they compel the need for increased differentiation in time and space, which transforms the shape and focus of the composition. Articulating the generative dynamics of painting GAN images then requires unpacking events of emergent recognition alongside the technical constraints and affordances of the painting process, where each informs the other in a dynamic play that gradually exposes interest and information. I articulate these events as the "findings" and "beginnings" presented below:

Beginning 1: Painting with a brush (the movements with and across paint-charged bristles that separate and conjoin within a single stroke) is a consistency that gestures to absorb the impossibly transversal referentiality of the machine-generated image, as well as the difference between the plasticity of wet paint and the appearance of the image as it aligns with registers of photorealism generated by the GAN. Trajectory doubles back on itself, bifurcating into an intensely heterogeneous zoning of appearances. This occurs alongside zooming in and out of the hi-res GAN rendering (which does not appear to give more information of the same order but makes different kinds of relationalities visible within the image). The brushstroke becomes a tentative holding place (in movement) for recognition, which makes time and place for divergent sources and logics of appearance to become intelligible across scales, materials, and media.

Beginning 2: Begin with a description in time — the time of blobs of drying paint that, when wet, slowly rotate in unison, pressing marbelizing contours into form before drying flat and still. Once dried into place, the paint signifies a kind of facticity that refers to the matter-of-factness of this material process in time, which is something like that achieved by the event of photographic exposure. This mutual reference to the factual allows the dried blobs of paint to affectively operate as a useful stand-in for the faces that I usually avoid painting but refer to a plastic and situated quality of appearance rather than object capture. The contrast between the painted forms and the marbleized contours also points to and makes persistent the difference between paint and the painted image, and by extension, the painted image and an image created out of a computational distribution of pixels.

Beginning 3: Piece together parts of images, as if assembling a felt-like material, which becomes increasingly dense the more it is massaged with wet soap over time. The plasticity and technicity of painting GAN renderings present the image as a variable topography that can accommodate differential degrees of detail — across the appearance of material density, transparency, opacity,

← fig. 2 *ThisPersonDoesNotExist 02*, 2021, acrylic on canvas, 102 × 122 cm. Copyright, courtesy of the author.

3 Édouard Glissant, *Poetics of Relation*, trans. Betsy Wing (Michigan: University of Michigan Press, 1997), 62.

4 Glissant, *Poetics of Relation*, 62.

5 Glissant, *Poetics of Relation*, 91–93.

6 Isabelle Stengers, "Including Nonhumans in Political Theory: Opening Pandora's Box?," in *Political Matter: Technoscience, Democracy, and Public Life*, eds. Bruce Braun, Sarah J. Whatmore, Isabelle Stengers and Jane Bennett (Minneapolis: University of Minnesota Press, 2010), 14.

reflectivity, and relief — as well as the heterogeneous referentiality of GAN renderings. This is a surface that holds even when what initially appears to be a woven thread begins to resemble over-exposed eyelashes, shadow, or ground seeping in from underneath.

Beginning 4: Mix the colour of the paint as precisely and as loosely as possible: colours must be precise but also intensely varied and tentative, ready to surface changing values, intensities, and saturations within a single brush stroke. Likeness cannot be achieved without closely following profiles of over-saturation and over-exposure that constitute the GAN rendering, but which sometimes only appear after careful study and many failed attempts.

Beginning 5: I observe hundreds of GAN renderings, clicking refresh on the ThisPersonDoesNotExist website, again and again, to observe a new image, with no going back to the previous one. I skip over some images and take a screengrab of others without knowing exactly how the image may be incorporated into the painted composition. I look for images with areas of strangeness or unidentifiability. Sometimes I only recognize potential interest in the image after skipping over it but will often see an image with similar traits later on. Though I register an affective difference between faces that I like looking at and those that I do not, this register of intelligibility fades as recognition becomes increasingly focused on deciphering the generative basis of the image. This transition is something like that which occurs when tending to bodies in a way that requires technical engagement — when applying make-up, washing a face, styling someone's hair, or tending to an injury — when bodies are felt in their intense, durational co-presence.

Beginning 6: In the painting process, some parts of the image are tended to in fine detail, and others are ignored. Often, parts previously ignored or simplified are revisited, a process that often reveals them to be of critical importance for identifying the compositional dynamism of soft spots. As soft spots become intelligible gradually and inconsistently over time, they pulse new beginnings even amidst areas of the painting that were previously thought to be finished, foregrounding the persistent incompleteness of painting GAN renderings.

Finding 1: Absence of form/ground distinction. Unlike photographic depth-of-field, in the GAN rendering, optical registers do not fully regulate how objects are separated from or recede into the distance, but there are areas that appear as either a background or foreground. The difference between form and ground is not one of more or less information but one of information organized to mark probable thresholds of difference that simultaneously generate new modes of formal and compositional relation. Some examples of this include a) forms in the foreground appear severed or shaped by the background, b) patterns seen in foreground objects are repeated as a variation in the background such that tightly curled hair can seem to inform the

←fig. 3 *ThisPersonDoesNotExist 01*, detail. Copyright, courtesy of the author.

appearance of crochet in a worn headpiece and/or background patterning in close proximity, c) form-ground distinctions are marked multiple times over, creating the appearance of superimposed image layers, and d) meandering form-ground thresholds are variably composed of and tie into other image attributes. To achieve a sense of likeness, one must actively suspend form/ground recognition during the painting process since the differences separating them are changing and multiple.

Finding 2: Speculative composition. Otherwise, unconnected constitutive elements, and recognizable objects, converge in speculative configurations while maintaining a photorealist aesthetic within the GAN rendering. One example of this is the appearance of a sodium-lit, nighttime city skyline in the reflection of tortoiseshell sunglasses, despite the apparent brightness of the midday sun present in the rest of the image. The horizontality of the nighttime skyline aligns with and is visually extended by the patterning and coloration of the tortoise shell on the sunglass arm, making an opening to speculate about the generative basis of the image and how it conjures logics of appearance. The co-presence of the appearance of day and night (afforded by sunglass reflectivity in this image as well as several others), reveals the absence of a sense of time within computational logics of appearance. In painting these images, rhythms marked by the difference between sunrise and sunset are affectively suspended, lending duration instead to surfacing patterns of abstraction orchestrated by machine composition.

This/This s peculative composition also allows for highly specific material forms to emerge that resemble actual materials but have no continuous material constitution or surface. This non-continuity appears in multiple instances. For example, light effects like over and under-saturation can appear to sever or hold threads and strands together while casting shadows and highlights simultaneously. Figures of appearance like threads and strands do not have a singular mode of appearance but can diversely constitute the substance of worn objects as well as background textures within the same image.

Cast reflections of buttons that appear attached to the top-facing surface of cloth also appear to shine through (from underneath) the cloth. Examples of curly hair, which at first glance appear composed of individual strands, are instead composed of a network of overexposed highlights against a changing spectrum of over-saturated colour, such that over-exposure appears as a binding agent and the main constitutive element of form. As the machine-generated image conflates light and matter, it also repurposes depth of field as a generative formal potential, such that out-of-focus bleeds between form and ground or mends the difference between otherwise irreconcilable textures and forms. In some cases, the smoothness of out-of-focus forms into elaborate, petal-like adornments held together by high contrast tendrils sourced from patterns similar to those seen in over-exposed hair.

Such forms cannot be painted as petals and stems, as threads, or as cloth, where the movement of brush bristles can find some continuity with the surface of the object being painted. Instead, one must paint to forget the experience of material continuity in time, of running a hand over a textured surface or pulling a comb through hair. Here, likeness coincides with a processual reworking of an inhabited sense of the time of co-presence with material objects, which unfolds in compositional generativities that are felt periodically and progressively.

↑fig. 4 *ThisPersonDoesNotExist 02*, detail. Copyright, courtesy of the author.

↑fig. 5 *ThisPersonDoesNotExist 02*, detail. Copyright, courtesy of the author.

Finding 3: Speculative genealogies. Certain form-based genealogies appear across different machine renderings, which suggest similar versions of likeness. Hair and skin appear woven into elaborate, bejeweled configurations, which are sometimes more like a headband and sometimes more like a hat. Petal adornments vary in shape and colour, depending on other colours and patterns present in the rest of the image. Sometimes abstract forms of the same colour, texture, and apparent material constitution appear in different images or different locations in the same image. Collars and necklace chains often appear inlaid on the skin, as do unruly strands of hair that extend into the appearance of wrinkles around the eyes and mouth. These different versions of similar patterns reveal a probabilistic correspondence that does not fully foreclose the terms of appearance and identification. As these appearances echo one another within a single rendering or across several renderings, they make thinkable and feelable a worlding in which recognition is organized probabilistically. At the same time, the inseparability of apparent material forms conjures a thick and slow consistency where parts cannot be smoothed or separated and demand hesitant, careful accompaniment (something like picking chewing gum out of someone's hair).

Finding 4: Major/minor dynamism. Just as the appearance of form and ground lose distinction within GAN assemblages, the difference between major and minor formal elements can also become indistinguishable. If major

forms coincide with registers of photographic recognition that foreground the sense of referentiality associated with object appearance, minor forms present appearances that are irreconcilable with photorealism, even as they sometimes constitute an overall photorealist appearance. The most seemingly minor and easily overlooked element can become a key attribute for understanding the composition of shapes. In the machine-rendered image, close attention to minor forms reveals a multiplicity of image compositions within an image — an image of background that seems initially composed of foliage can have geometries that are more akin to geology and, at the same time, appear to tuck and fold according to reflective edges that mark its boundary. This means that painting image likeness cannot be achieved without careful attention to forms that threaten the recognizability of the image, since their boundaries and influence on recognition are not fully intelligible. As the ambition to capture an overall likeness proposed by the painting process is rerouted in these alternative configurations of form, recognition is foregrounded as a time-based and speculative process that must readily accommodate partialness, uncertainty, and opacity.

In conclusion, painting GAN renderings opens up a spacetime in which to formally and affectively reconfigure tendencies of object recognition that are amplified by the assumed facticity of photorealism. The appearance of speculative logic proposes an imaginative engagement with a recognition that supplants a sense of givenness with one of tentative uncertainty and potential. Painting becomes not only a means of attending to a transversal generativity that is informed by a confluence of painterly, photographic, and GAN technologies, but also an influence on tendencies of recognition, movement, anticipation, and hesitation. The time of recognition becomes felt like a gathering of cacophonous patterns, each orchestrating rhythm that reshapes the ontological status of both objects and subjects as they are situated within a milieu of dynamic recomposition. As recognition becomes thinkable as a time-based potentiality, it offers opportunities to amplify attention to minor generativities and to suggest and concretize alternative senses of bodies and collectivities that exceed the human.

Nicole De Brabandere (PhD, University of Arts, Linz) is an associate researcher at McGill University, Canada, and the editor of the forthcoming volume: *Media, Practice and Theory: tracking emergent thresholds of experience*, a collection of 10 chapters around concepts and practices of corporeality, articulation, and media, Vernon Press.

ARTIST CONTRIBUTION

Sander Breure & Witte van Hulzen

Sander Breure (1985, Leiderdorp, NL) & Witte van Hulzen (1984, Bolsward, NL) both live and work in Amsterdam. Breure graduated from the Royal Conservatoire in The Hague, and Van Hulzen obtained his degree from Artez in Arnhem. In the performance, installation and video work, photography, drawing, and theatre of Sander Breure and Witte van Hulzen, you can feel the artists' fascination with the human condition: its interpretation and the encoded structures; the influence of time and place on relationships; behaviour and body language.

Breure and Van Hulzen have been awarded several prizes including the Charlotte Köhler Prize in 2018 and 'Best Propose' at the Seoul International NewMedia Festival in 2016. Their work nominated for the Prix de Rome was shown in the accompanying show at the Stedelijk Museum Amsterdam. Their work has also been shown in solo and group presentations in the Netherlands and abroad, with exhibitions at, among others, Marres, Maastricht, 2019 and the Contour 7 Biennial for the Moving Image in Mechelen, 2015 as well as Ujazdowski, Warsaw, 2015.

Sander Breure & Witte van Hulzen
The Floor is Lava, 2019
Marres, Maastricht, NL
installation view
Photography: .Gert Jan van Rooij
courtesy tegenboschvanvreden, Amsterdam

Sander Breure & Witte van Hulzen, *The Floor is Lava,* 2019, Marres, Maastricht, NL
installation view
Photography: .Gert Jan van Rooij
courtesy tegenboschvanvreden, Amsterdam

Sander Breure & Witte van Hulzen, *Judith (The Waiting Room),* 2017, Rijksakademie OPEN, Amsterdam, NL
installation view
Photography: Gert Jan van Rooij
private collection, Italy

Sander Breure & Witte van Hulzen, *The Waiting Room,* 2017, Rijksakademie OPEN, Amsterdam, NL
installation view
Photography: Gert Jan van Rooij
courtesy tegenboschvanvreden, Amsterdam

Sander Breure & Witte van Hulzen, *The Waiting Room*, 2017, Rijksakademie OPEN, Amsterdam, NL
installation view
Photography: Gert Jan van Rooij
courtesy tegenboschvanvreden, Amsterdam

“IN

THE

WAKE,

THE PAST THAT
IS
NOT
PAST

REAPPEARS,
ALWAYS,

TO
RUPTURE
THE PRESENT.”

Christina Sharpe, *In the Wake* (2016)

EXTRACTION, TEMPORALITY, AND THE DIGITAL: THREE LAYERS OF SIMON DENNY'S "MINE"

Jaxon Waterhouse and Chantelle Mitchell

Simon Denny's "Mine" (2019-2020), an installation at the Museum of Old and New Art, is a resonant exhibition reflecting our complicated relationships with extraction, data, and time. Readily appropriating imagery and materials from the mining sector, and utilising technology, tracking, and augmented reality, Denny weaves narratives of replication, possession, and manufacture across physical and digital landscapes. Through interventions into Mona's O — a digital interface that provides information whilst tracking viewing habits and experiences — the artist positions the viewers as complicit in the extractive process, and through augmented reality and digital infrastructures as the extracted material themselves. In this essay, Waterhouse and Mitchell analyse how the real-time capture and passage of information as represented in "Mine" destabilises experiences of the quotidian. Time is troubled by the many interrelated components of this exhibition, distended as it stretches across physical sites and grows nebulous within the numerous virtual locations accessed through the O. As the mass of data grows, viewers become keenly aware of thriving industry, accelerated extinction rates, and the encroachment of an all-too-real end.

In an act of digital alchemy, the canary in the coalmine becomes a threatened species. The call of the King Island Thornbill rings out within carved stone walls, an echo of extinction amidst cultures of accumulation and extraction.

On the outskirts of nipaluna/Hobart, Tasmania, beside the Derwent River, sits the much-mythologised Museum of Old and New Art (Mona); a site of scandal, self-promotion, manufactured outrage, and a setting for some of the most provocative and conceptually ambitious exhibitions in Australian history.[1] Reflecting upon the physical construction of Mona, James Pearce, the project's architect, highlights the scale of the operation and its sheer brute mechanics. While this may sound at odds with the collection of buildings that dot the hillside, much of the gallery space is built *into* the hill itself and is thus located in an underground network of tunnels and caverns. To build these cavernous exhibition spaces, "they just got a big circular saw on the back of a backhoe," Pearce states, "cutting, cutting, cutting."[2]

While the size and financial infrastructure of Mona have enabled a wide array of grand and complex exhibitions, rarely do these speak so directly to the underground labyrinth of tunnels and the mine-like nature of the space. It was amidst the physical traces of extraction, the whorling scars left by the saw's teeth across the gallery walls, that Simon Denny's "Mine" existed for a period of eleven months across 2019-2020 — a haunting reflection on labour, capital, and absence, followed by a vivid, hyperreal, and oversaturated materialisation of industry, extraction, and accumulation within a gamified Australian frame, and artistic responses to said processes.

Descending into Mona and stepping through the hollowed-out, mine-like halls, the visitor encounters Denny's "Mine" across three spaces. The first gallery presents an aesthetically minimal environment, with an empty industrial cage, surrounded by wall-based blueprints for this cage, overlaid with images of the King Island Thornbill (fig. 1). This space appears void of movement and liveliness but can be animated by Mona's digital device, the O, which employs augmented reality (AR) technologies. A brightly-coloured life-sized game board signals arrival into "Mine's" second room (fig. 2). With its QR codes and AR markers, this game encourages participation and gameplay, whilst surrounded by extractive machinery cardboard cut-outs (fig. 3). These life-size cardboard replicas are used as display stands for retail copies of the board game itself, and as information and activation points for the AR component of "Mine" (fig. 4). The stark fluorescent lighting from above makes it appear almost department-store-like as visitors navigate through the space. Everything for sale, even the visitors themselves, through the machinations of the O. The exhibition then opens into a third room, more subtly lit, containing a curated selection of works from the Mona collection within classic, recognisable display cases.

In "Mine," Denny reimagines the classic Australian board game Squatter for the contemporary through the lens of data mining,

↓fig. 1 Installation view of Simon Denny, *Mine*, 2019 at Mona, Museum of Old and New Art, Tasmania, June 2019-April 2020, photo: MONA/Jesse Hunniford.

1
See: Evaluation Engineering, "Ovum Says Look Beyond Technology to the Cultural Aspects of Gamification," *Electronic Design*, April 23, 2013, https://www.electronicdesign.com/technologies/test-measurement/article/21203254/ovum-says-look-beyond-technology-to-the-cultural-aspects-of-gamification.

2
Elizabeth Pearce and James Pearce, "Architecture Interview," *Mona*, n.d., https://mona.net.au/museum/architecture-interview.

←fig. 2 Installation view of Simon Denny, *Mine*, 2019 at Mona, Museum of Old and New Art, Tasmania, June 2019–April 2020, photo: MONA/Jesse Hunniford.

predatory capital, and Big Tech. The original Monopoly-like game, released in 1962, presented players with the opportunity to experience the challenges and successes of sheep farming through a tabletop format. Squatter emerges from a settler-Australian context, the titular "squatter" being an individual who unlawfully occupies supposedly unused land and holds a central role within Australian historical and cultural identity mythologies. "Mine" sees the cultural lineage of the squatter extrapolated into the present and toward the future, drawing an equivocation between those individuals who "squatted" on so-called "unoccupied" lands, thus "opening up" the Australian continent for industry and population, and the "new" landscape of data extraction. Denny's version, "Extractor," amplifies the seemingly quaint format of the original, filling the space with a life-sized board that is grand and complex in its scale.

→fig. 3 Installation view of Simon Denny, *Mine*, 2019 at Mona, Museum of Old and New Art, Tasmania, June 2019–April 2020, photo: MONA/Jesse Hunniford.

→fig. 4 Installation view of Simon Denny, *Mine*, 2019 at Mona, Museum of Old and New Art, Tasmania, June 2019–April 2020, photo: MONA/Jesse Hunniford.

However, "Mine's" occupation of Mona extends beyond the physical spaces of the gallery, with Denny appropriating the O to animate "Extractor." As players progress through the game, emerging onto the playing field as a small start-up, they navigate growth, ethical concerns embedded into contracts, and corporate management. The promise of financial gain motivates progression — the challenges, successes, and compromises of engaging in systems of capital. The game is brought to life by Mona's digital apparatus, as sounds, advertisements, product pitches, and AR experiences are broadcast from each handheld portal, affecting a spread that entangles site, time, and matter within a complex material and digital landscape of the museum and beyond.

"Extractor" mirrors the contemporary landscape of consumption, production, and data, as gamification seeps into marketing and advertising strategies.[3] In this way, the central processes within "Extractor" see enactment and re-enactment of that which occurs in real life, and that which is manipulated in the digital.

As an institution, Mona has traded on idiosyncrasies as an operational model, from membership tiers that entitle subscribers to internment into the site's mausoleum upon death to an installation of 150 true-to-life casts of vulvas.[4] Mona is recognised as a non-traditional space, inviting subversion, controversy, and experimentation.[5] This extends beyond purely artistic frames, encompassing transport to the gallery (as seen in the Mona Roamers — gaudy ferries with AstroTurf, sculptural seating, and underground bars), the supporting apparatus for exhibitions, and the curatorial decisions within the museum itself.

3
Current research suggests gamification, or the encouragement of consumer participation rewards programs through achievements, tiers, and unlocking rewards, particularly mediated by smartphone applications, can be utilised to gather consumer data in the process. See: Evaluation Engineering, "Ovum Says."

4
Museum of Old and New Art, "Past Exhibitions," *Mona*, 2022, https://mona.net.au/museum/exhibitions. Whilst the "Eternity Membership" programme is no longer visible on the museum's website, it was once possible to be buried in the museum's crypt alongside David Walsh's father. See: Clarissa Sebag-Montefiore, "Australia's Temple of Weird," *Slate*, February 20, 2015, https://slate.com/news-and-politics/2015/02/mona-tasmanias-biggest-tourist-draw-is-a-controversial-museum-featuring-a-poo-machine-and-the-chocolate-coated-entrails-of-a-suicide-bomber.html.

5
News articles from the last decade present Mona as "controversial," "provocative," and a source of outrage. See: Carol Rääbus, "Censored, Pulled or Modified: Mona's History of Controversy," *ABC News*, April 21, 2017, https://www.abc.net.au/news/2017-04-21/five-times-mona-caused-controversy/8460440; Stephanie Convery, "Dark Mofo: Mona Founder Unperturbed by Controversy over Inverted Crosses," *The Guardian*, June 9, 2018, https://www.theguardian.com/culture/2018/jun/09/dark-mofo-mona-founder-unperturbed-by-controversy-over-inverted-crosses; and Rhiannon Shine and James Dunlevie, "Dark Mofo's 'Bloody, Sacrificial Ritual' Blasted by Animal Rights Group," *ABC News*, April 19, 2017, https://www.abc.net.au/news/2017-04-19/controversy-over-hermann-nitsch-dark-mofo-bloody-art-show/8452202.

As a privately-owned space, Mona is free from some of the constraints that inhibit experimentation and provocation within state-run galleries and museums.[6] Whilst presenting significant and rigorous practice (including historical figures such as Anselm Kiefer, Brett Whitely, and Sidney Nolan), Mona distances itself from the pedagogical expectations of comparable institutions, presenting itself instead as a "subversive adult Disneyland."[7] While undoubtedly visitors can gather something from their visit to Mona, they are also more likely to be overcome by the affective impact of their experience, more so than the knowledge they have encountered. In this, Mona appears as an institution attuned to the Instagram age: intriguing, unique, and gratuitously shareable; the ideal place for an exhibition such as "Mine," concerned with our experiences of reality as mediated by the digital.

A deliberate and, at the time, unique element of Mona's design was the rejection of traditional physical exhibition labels in favour of digital engagement through the O — an iPod-like device that is handed to the visitors upon their descent into Mona, but is also available as a downloadable application for iPhone and Android. The O operates as a map and catalogue, and allows for a critical response to the works on show.

The O's interface utilises a spatial locator to track the movement of visitors throughout the gallery, detecting the visitors' proximity to an item on display, subsequently triggering the loading of relevant didactic material. By selecting a nearby work from the proximally generated list, visitors receive traditional information about the work, idiosyncratic insights from Mona's owner David Walsh, or short, simple descriptions. Further, the O is interactive, providing patrons with the opportunity to register their likes or dislikes, save collection items, and join virtual access queues whilst simultaneously tracking exhibition engagement.[8] Developed by tech company Arts Processors, the O transforms visitor experience through digital technologies, offering the visitor opportunities for further engagement, whilst harvesting information by collecting real-time visitation data and tracking viewing patterns and habits.[9]

It is significant that the O device not only aesthetically resembles an iPhone, but is also powered by much of the same digital infrastructure as our personal devices. This resemblance extends to the device's controls and the data collecting tools embedded within the device (fig. 5). When visiting Mona and employing the O to maximise engagement with the works, a transaction is willingly entered into with the institution, in which the data harvested from this visit is retained by Mona as a business tool. When viewed objectively, however, Mona is and acts much like any other corporation, utilising the same market research, data retention techniques, and tools as Big Tech companies to direct future business operations.

In speaking to the motivations behind "Mine," Denny, a New Zealand-born, Berlin-based contemporary artist entangled with data, technology, and start-up culture, highlights the significance of materiality and the digital through work that calls attention to geo-human entanglements.[10] Within "Mine," these entanglements are linked in the nexus of the O, as the device's function expands beyond mere exhibition support or institutional tool to become integrated into the exhibition itself. This intervention acts as a subtle institutional critique, rendering bare the technological mediation of the art experience by Mona as tied to business practices. As a component of the exhibition, the O-enabled AR, visualisations, and visitor interactions extend the exhibition into the digital sphere in real-time.[11]

While Denny remarks that "processes of extraction are only getting more visible," he also notes the apparent distance that exists between geologic extraction from the earth and those forms of extraction taking place through digital technologies. As he observes, these processes "can seem very far apart; when you're using Facebook, you're not thinking of rocks in the ground... but it's all part of an interconnected system, an old system, an industrial system, that I think needs to change."[12] We can apprehend "Mine," then, as an attempt to close the perceived distance, rendering tangible the practices of extraction taking place across different scales, as well as the entanglement of the human and more-than-human within current epochs of extraction and accumulation, some with greater consequence than others. Whilst it is true that it is the Earth that "provides for media and enables it: the minerals, materials of(f) the ground, the affordances of its geophysical reality that make technical media happen," our relationships with extraction and capital are mediated and obscured.[13]

"Mine" is an exhibition highlighting the perceived distance between extraction and the technologies it

←fig. 5 Visualisation of user captured data from the "The O" visitor guide at MONA, Museum of Old and New Art, Tasmania, developed in collaboration with Arts Processors. Showcasing user interaction with Simon Denny, *Amazon worker cage patent drawing as virtual King Island Brown Thornbill cage (US 9,280,157 B2: "System and method for transporting personnel within an active workspace", 2016)*, 2019. Courtesy of the artist.

6 In 1999, the director of the National Gallery of Australia announced the cancellation of art collector Charles Saatchi's touring exhibition "Sensation," featuring prominent works by artists from the Young British Artists Movement. This followed the receipt of over 70 protest letters from community members. Several works from this exhibition, including Chris Ofili's "The Holy Virgin Mary" (1996), have since been acquired by Walsh and/or displayed in Mona. Alison Young, "Australian Millionaire's Museum Tries Something New (and Old)," *Hyperallergic,* April 6, 2011, https://hyperallergic.com/22154/australia-mona-museum/. For an overview of the private museum landscape, including a summary of Mona's curatorial programming, see: Georgina Walker, *The Private Collector's Museum: Public Good Versus Private Gain* (Milton Park: Routledge, 2019).

7 Cristina Ruiz, "Art's Subterranean Disneyland," *The Art Newspaper*, July-August 2010, https://content.utne.com/Arts/Subversive-Tasmanian-Art-Museum-David-Walsh.

8 The collection items saved by the visitor can be downloaded and sent to a supplied email address at the conclusion of the visit, or can be stored in the application.

9 Alongside capturing important visitation data, the available descriptions of works allows for greater accessibility to visitors in terms of audio descriptions, screen reader capabilities, and jargon-free alternatives.

10 Simon Denny and *Arts Processors*, "Provoking Audiences to Rethink Their Relationship with Tech and the Environment. Simon Denny: Mine," Arts Processors, 2019, https://www.artprocessors.net/projects/mona-simon-denny-mine.

11 Our understanding of the concept "real-time" is informed by philosopher Paul Virilio. Virilio acknowledges that the real-time of the present emerges from and is transformed by technology and media. He argues that through the representation of the real world in media, "the basic concept of physical dimension has progressively lost its meaning and analytical power as a form of dissecting or dismounting perceptive reality. Instead, we find other, electronic means of evaluating space and time, one that share no common ground with the measuring systems of the past." Thus, time becomes measured by relationships with the world as mediated by technology, and technology has "denatured" direct encounters with the world outside the digital. Paul Virilio, *Lost Dimension,* trans. Daniel Moshenberg (New York: Semiotext(e), 1991), 30, 111.

12 Simon Denny and Arx Pictures, "Mine," *Petzel Gallery*, 2021, https://www.petzel.com/exhibitions/simon-denny4/videos?view=slider.

13 Jussi Parikka, *A Geology of Media* (Minneapolis: University of Minnesota Press, 2015), 13.

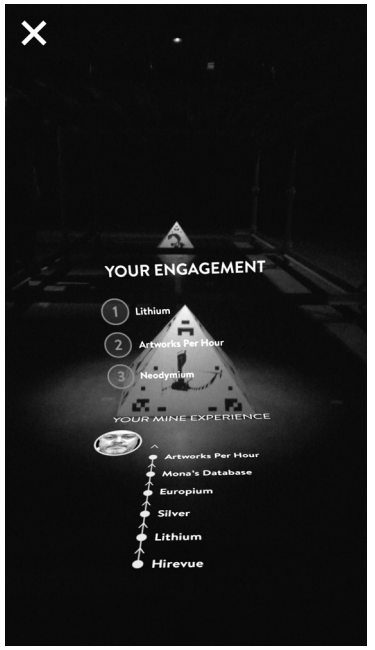
enables, whilst bringing participants into proximity with the implications of extraction across human and more-than-human frames. Media scholar Sean Cubitt rightly identifies that "geographical distance is no longer trustworthy protection" from the very real impacts of extraction upon the world, given the all-encompassing threat and damage of the climate crisis.[14] Our devices become a means of connectivity that extend further than the communications they enable, as the minerals present within them connect us with those who extracted their material components, including lithium miners in Chile, copper miners in Zambia, tin miners in Indonesia, and iron ore miners in the north-west of Australia. Physical distance collapses within the context of the digital device, but so too does time. Just as the invention of the map effectively shrank the globe into a series of conceivable and, therefore, traversable distances, our digital devices reperform this across temporal, geographic, and material frames. Within "Mine," Denny identifies this, and the O becomes transformed in this frame — it comes alive or resonates with the very truth of what it is. Although presented in a gamified manner, the visitor must confront the truth of their device as they navigate cardboard representations of the machinations that have brought it into being. The AR capabilities of the O animate aspects of the "Mine" installation — perhaps a means of speaking to the centrality of digital devices as a tool within contemporary life, but also as a way of demonstrating how certain realities have been augmented by relationships to the technologic and digital. In so doing, Denny apprehends the device's capacity to enhance our experience of the world and makes us aware of the degradation of the real as a result. In using the O, the viewer and institution are implicated within the very structures interrogated within the exhibition.

Denny's engagements with extraction in "Mine" reflect accepted realities of human-geologic relations, which have been positioned as the disruption of geologic temporalities by human intrusion, and our position as a geologic agent through the heralding of a much-argued epochal shift.[15] The sculptural components of "Mine," — cardboard renderings of heavy machinery — surround the playing space. These are imitations of the same machines that cut in and away at stone to make the cavernous exhibition spaces of Mona, and which extract from the earth in increasingly large quantities. In this way, these replicated machines become scaffolds, emphasised by their use as merchandising displays for boxed take-home editions of "Extractor," the game. Whilst they take up very real space within the exhibition, they are strangely hollow, belying the heavy and permanent materiality and affect of "real" machinery.

Despite their true-to-life representation, this machinery has no teeth — it is the virtual layer, enabled by the O, that breaks new ground for Denny and the broader conversation he is facilitating, breaking through the veneer of the digital to give new weight to the device held in the visitor's hand. It is this, the O and the digital infrastructure, that enables the machinery's functions, as it continues to propel extraction, both in the real and within the frame of the exhibition. The device at once enacts, manipulates, and complicates experiences of geological time, implicating the visitor through material and virtual encounters.[16] In "Mine," the O forces an encounter with a cacophony of advertisements, visualisations of data accumulated by Mona, real-time tracking of mineral extraction across the globe, alongside the mineral components of the devices in hand (fig. 6-7).

The device, too, reflects the face of its users in these visualisations, positioning the self firmly in the digital sphere. At one stage during "Mine," the O prompts the visitor to take a selfie and subsequently uses this image to diagnose that individual's mood, to varying degrees of success. While this technology is commonplace now, ubiquitous through Instagram filters that classify the user as a certain character, animal, or household item, this resonates differently within the frame of "Mine." As the visitor's face appears on the screen of the O device, we are extractor and extracted, reflected back at ourselves but trapped helplessly within the rectangle (fig. 8).

The rectangular shape of the O device can be understood as that, which artist Camille Henrot identifies as "the mark of the division between man and nature," containing and obscuring tangled geo-human temporalities.[17] Within the rectangle, we encounter and



↑fig. 6 Visualisation of user captured data from the "The O" visitor guide at MONA, Museum of Old and New Art, Tasmania, developed in collaboration with Arts Processors. Showcasing user interaction with Simon Denny, *Amazon worker cage patent drawing as virtual King Island Brown Thornbill cage (US 9,280,157 B2: "System and method for transporting personnel within an active workspace", 2016),* 2019. Courtesy of the artist.

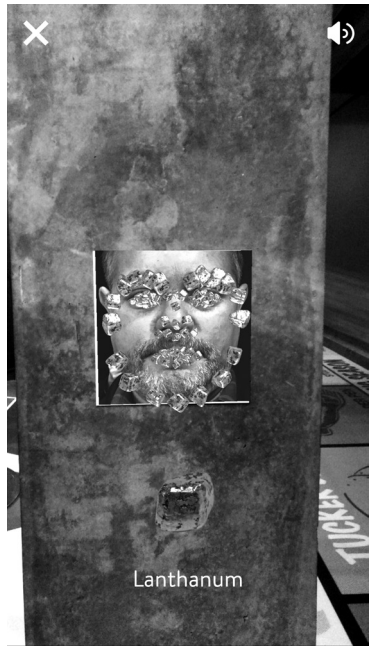
←fig. 7 Visualisation of user captured data from the "The O" visitor guide at MONA, Museum of Old and New Art, Tasmania, developed in collaboration with Arts Processors. Showcasing user interaction with Simon Denny, *Amazon worker cage patent drawing as virtual King Island Brown Thornbill cage (US 9,280,157 B2: "System and method for transporting personnel within an active workspace", 2016),* 2019. Courtesy of the artist.

14
Sean Cubitt, *Finite Media* (Durham: Duke University Press, 2016), 64.

15
Emerging from Earth system science in the 2000s, the Anthropocene has been positioned as a geological epoch succeeding the Holocene and unfolding in the present. The Anthropocene recognizes the human as a geological agent, shaping the Earth through extraction, pollution, and deforestation, responsible for geoengineering the globe. However, the Anthropocene is yet to be formally recognised as a geological unit by the International Commission on Stratigraphy. See: Paul Crutzen, "The 'Anthropocene'," in *Earth System Science in the Anthropocene*, eds. Eckart Ehlers and Thomas Braun (Berlin: Springer, 2006); Jan Zalasiewicz, Mark Williams, Alan Haywood, and Ellis Michael, "The Anthropocene: A New Epoch of Geological Time?," *Philosophical Transactions of the Royal Society* 369, no. 1938 (2011): 835-841; and Donna Harraway, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin," *Environmental Humanities* 6, no. 1 (2015): 159-165.

16
Geological time, or deep time, extends far beyond human temporality, contained in stratigraphic layers, a record of the Earth.

17
Camille Henrot, *Elephant Child* (New York, NY: Inventory Press and London: Koenig Books, 2016), 54.



↑fig. 8 Screen capture from AR component (Rare Earth Element Facial Overlay) of Simon Denny, *Mine*, 2019, Mona, Museum of Old and New Art, Tasmania, June 2019–April 2020. Courtesy of the artist.

are made to encounter ourselves. Catastrophic and transformative interventions into geologic time enable this encounter, with the mediation of the temporal experience of life by the digital acting removing us from its enactment. Earthly history and the time this entails are made into minute processors and microchips, shrinking millions of years into microscopic parts. These parts assist us in our own entrapment, as we self-surveil through chronicling our real actions within a digital forum, and are thus rendered as algorithmic predictors, no longer human but a tool for machine learning.[18] The rectangle alters temporal experience as the visitor tracks their visit on the O device; there is a loss of temporal awareness as time slips from the marker of phenomenological subjectivity into a marker of real-time phenomenological mediation. This "real-time" emerges from digital frames; it is the transference or representation of the world as it happens — mediating the real world and reflecting it back instantaneously.[19] Thus, attention is no longer set in the passage of time in the world, but is drawn to the record and measurement of it within the device. This change speaks not only to the O but to all devices, as "real time" becomes a Borgesian record of experience occurring simultaneously with existence.[20]

In "Mine," the machinations and structures of the rapidly accelerating digital present are illuminated for what they are: tied to the manipulation of deep time and fossil fuels in the pursuit of power and control. This speaks to the effectiveness of "Mine," particularly within the Australian context, given the centrality of mining and extractive industries to the legitimacy and economic stability of the colonial nation-state. Leveraging the capabilities of the O, which is made from the same minerals critiqued by the exhibition (including lithium, tin, gold, copper, and cobalt), and mining the data of Mona's patrons, "Mine" presents as a spatio-temporal unity — in which "the human body, technological device, and physical location form an ecology," one displayed and excavated across the tripartite stratigraphy of extraction, temporality, and the digital that unfold across the three rooms of "Mine's" installation.[21]

18
Contemporary surveillance studies emphasise the significance of willing participation, post-panopticon dynamics, and participatory surveillance as emerging from and contributing to so-called "surveillance societies." In this context, digital technologies are said to assist in the production of "liquid forms of surveillance," which seep and spread across almost all aspects of contemporary life. See: Anders Albrechtslund, "Online Social Networking as Participatory Surveillance," *First Monday* 13, no. 3 (2008); David Murakami Wood and C. William R. Webster, "Living in Surveillance Societies: The Normalisation of Surveillance in Europe and the Threat of Britain's Bad Example," *Journal of Contemporary European Research* 5, no. 2 (2009): 259-273; and Alice Marwick, "The Public Domain: Surveillance in Everyday Life," *Surveillance & Society* 9, no. 4 (2012): 378-393.

19
Luciano Floridi, "Digital Time: Latency, Real-time, and the Onlife Experience of Everyday Time," *Philosophy & Technology* 34, no. 3 (2021): 407–412.

20
Writer Jorge Luis Borges proposes that the only satisfying map of the world is that which is drawn to the exact scale of the world. In the same way, the real is tracked, mapped, documented, and filmed concurrently within the digital. See: Jorge Luis Borges, *On Exactitude and Science. Borges Jorge Luis Borges Collected Fictions*, trans. Andrew Hurley (London: Penguin Books, 1998).

21
Amanda Starling Gould, "Invisible Visualities: Augmented Reality Art and the Contemporary Media Ecology," *Convergence* 20, no. 1 (2014): 30.

This ecology, occurring within both the frame of the board game and the underground exhibition space, is one whereby the visitor, in their experience of reality augmented by the O, can "sense" the world anew. This world is one that is marked by an acceleration in the shrinking of temporal distance between events and the advent of "real-time." This new world is one that is also marked by visibility, in our capacity to witness the unfolding of events as they happen, regardless of distance, as transmitted to us in a continual stream. This visibility is a central facet of "Mine" in its relation to the AR experiences of the work.

Through the O's augmentation, we can witness the critically endangered King Island brown thornbill, albeit in the form of a digitally rendered simulacrum, and are made acutely aware of the costs of our spectatorship. The first room of "Mine" contains a white sculpture, a cage fabricated from a discarded Amazon patent. Amazon's intention for this cage was to house workers, presented as a means of protecting them, but was widely received as yet another instrument of capitalist torture. Denny brought this shelved project to life, creating the cage directly from Amazon's plans. However, Denny's cage does not house a precariously employed individual. It appears uninhabited — except for a pyramidal marker emblazoned with a small bird (fig. 9). When viewed through the O, this marker activates an AR component, with the sound of a King Island brown thornbill. Through this AR technology, the visitor is brought into proximity with the species, which at present is threatened with extinction. What the visitor is not necessarily aware of upon first viewing this AR experience, however, is how proximal their existence has been to the species' demise, a fact Denny seeks to impart through the adaptive nature of this work, responsive as it is to visitor numbers. An inverse relationship — as more viewers congregate and activate the AR, more and more thornbills sound, increasing numbers far beyond any possible population left in the wild.

The extinction of the King Island brown thornbill has been directly tied to anthropogenic habitat destruction in the face of industry and climate change. In an unsettling and deliberate intensification of the thornbill's actual circumstances, in which the only hope for the bird's regeneration lies in gathering data about its habits and habitat, acts of surveillance rely upon the same technologies emerging from extractive activities, which disrupt habitats across the globe. In seeking to witness the King Island brown thornbill within "Mine," we become acutely aware of the ecological penalties that accompany our desires.

→fig. 9 Screen capture from AR component of Simon Denny, *Amazon worker cage patent drawing as virtual King Island Brown Thornbill cage (US 9,280,157 B2: "System and method for transporting personnel within an active workspace", 2016)*, 2019. Courtesy of the artist.

As the visitor navigates "Mine," both physically and digitally, the exhibition comes even further to reflect the mine-like labyrinth of tunnels and interfaces it occupies. "Mine" complicates the limited possibilities of diachronic time by shrinking geological temporalities and conflating them with the notion of "real-time," as they manifest within and through the O device. The temporal complexities offered through "Mine" extend to considerations of the bodies that are implicated in, and impacted by, the technology that enables the extension of "Mine" into digital space; as we consider the manipulation of the geologic to become technologic, the impact these technologies have on our experiences of everyday life and the more-than-human cost at which they occur. Ultimately, the AR Denny offers us within "Mine" comes to eerily reflect contemporary living. Participation within the gamified exhibition space allows for entry into a far broader consideration of the constructed experiences enabled by Big Data, contemporary tech landscapes, extraction, and digital interfaces. The game played within Mona's bowels is the one that is playing us in the world outside; those tendrils and machinations of data, technology, consumption, and extraction that cling, invisible but tight, to all of us.

Chantelle Mitchell and Jaxon Waterhouse are researchers, writers, and practitioners working across so-called Australia. Their collaborative ongoing research project Ecological Gyre Theory presents as methodology and ontology amidst a continually destabilised present. Their work has appeared as text within journals including Green Letters, on_Culture, e-flux, art+Australia, Unlikely, and un Magazine, as well as exhibitions for a number of artist run spaces.

HEALING THE INTERNET: EXPOSING COLONIAL HISTORIES, CARING FOR ALTERNATIVE FUTURES IN TABITA REZAIRE'S *DEEP DOWN TIDAL..*

Rosa Wevers

In the past years, the global pandemic has shown our ever-increasing dependency on the internet as a means of communication. In these times of digital transformation, the internet enables us to stay in touch without touching each other, to educate and learn from a distance, and to connect and find spaces of belonging without having to travel through a physical space. At the same time, the digital is far from a safe space. Online hate speech, sexism, racism, homophobia, and transphobia are deeply engrained within its operations, and algorithms feed the most extreme views to keep us addicted to the screen. The oppressive forces of the internet do not only exist in cyberspace but are also very much physical. Technology-driven planetary destruction through the exploitation of land and natural resources threatens our digital and offline futures. Scientific analyses show that the expected carbon emission of online cryptocurrency Bitcoin alone could already push global warming by 2°C in only a few decades.[1] The internet also forms the backbone of surveillance capitalism and algorithmic surveillance through which existing social inequalities are (re) produced and programmed into the future.[2] As theorist and philosopher Achille Mbembe argued, this political moment can be understood as one of techno-libertarianism, which foregrounds "a politics of replacement" that builds on the myth of the world becoming fully computational and humanity ultimately having to escape the Earth that is wounded by technology-driven exploitation and destruction.[3]

In this techno-libertarian context of digital transformation, there is an urgent need to reconsider a politics of care and repair as a way to deal with technology-driven exploitation of the planet and its inhabitants. Thus, rather than taking the internet's destructive effects for granted, and settle for a techno-solutionist approach, it is worthwhile to consider how these harms could be potentially repaired or taken care of.[4] The arts can play an important role in shaping a politics of care that entails "maintaining, continuing or repairing the world" in order to live in it in the best possible way.[5] In the specific context of digital transformation, cultural sociologist Ana Alacovska, cultural economist Peter Booth, and communication scholar Christian Fieseler

1
Camilo Mora et al., "Bitcoin Emissions Alone Could Push Global Warming above 2°C," *Nature Climate Change* 8, no. 11 (2018): 931–33, https://doi.org/10.1038/s41558-018-0321-8.

2
Ruha Benjamin, *Race after Technology: Abolitionist Tools for the New Jim Code* (Cambridge: Polity Press, 2019); Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham: Duke University Press, 2015); Soshana Amielle Magnet, *When Biometrics Fail. Gender, Race, and the Technology of Identity* (Durham, London: Duke University Press, 2011); Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York: New York University Press, 2018); Shoshana Zuboff, *The Age of Surveillance Capitalism* (London: Profile Books, 2019).

3
Mbembe, Achille, "Repair of Reason," (Lecture, BAK, April 17, 2021). Mbembe makes a similar argument in Achille Mbembe, "Futures of Life and Futures of Reason," *Public Culture* 33, no. 1 (93) (January 1, 2021): 11–33, https://doi.org/10.1215/08992363-8742136.

4
First discussed by Evgeny Morozov, technological solutionism is the idea that complex social issues can be solved best through the use of technology. Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (London: Public Affairs, 2013).

5
Joan C. Tronto, *Moral Boundaries : A Political Argument for an Ethic of Care* (New York: Routledge, 1993), 104; Jacqueline Millner and Gretchen Coombs, "Introduction: *Care Ethics and Art*," in Care Ethics and Art, ed. Jacqueline Millner and Gretchen Coombs (New York: Routledge, 2022), 1, https://doi.org/10.7765/9781526146816.00009.

have pointed out that "artists carry out a wide range of practices of care that have a potentially transformative impact on digital society"; for instance, by exposing injustices and hidden power structures that exist in supposedly objective technologies and data practices.[6] In the following section, I will analyse how such a critical yet careful approach to the present, past, and future conditions of the internet as communication technology and a source of knowledge is conceptualised and visualised in the video artwork *Deep Down Tidal* (2017) by Tabita Rezaire.

Rezaire describes herself as an artist-healer-seeker "working with screens and energy streams."[7] Her cross-dimensional practices weave together spiritual, organic, and electronic approaches, and are characterised by a strong commitment to decolonial and intersectional feminist politics. Rezaire's work can be situated within a generation of Black digital artists, who are actively engaging in conversations on Black resistance and community-regeneration.[8] *Deep Down Tidal* is a video installation in collage form wherein Rezaire brings together technological, spiritual, cosmological, and political narratives about water and communication. Interweaving visual references to internet culture with archival material, screen recordings, and filmed footage of singing and dancing performances, the video-essay critically attends to the submarine and colonial conditions of the internet. *Deep Down Tidal* is a multifaceted work, so given the limited scope of this article, I focus my analysis on how Rezaire's work provides spectators with tools to reflect on the politics of the internet, and more specifically, to understand how historical Western hegemonic structures are reproduced through electronic colonialism.[9] Moreover, I consider how *Deep Down Tidal* shapes an alternative approach to the future of communication and knowledge grounded in a politics of care and embodied healing.

Diving into the internet's history

Deep Down Tidal opens with a shot of an animated Wi-Fi-signal circling around two hands which are holding a mobile phone, accompanied by a sinister, metallic, and resonant ambient sound. The short scene is rapidly disrupted by a ringtone version of Jennifer Lopez's *Ain't your mamma*. A woman appears on screen, sitting in front of a green screen on which a cloud is projected — visually referencing the myth of the internet as a cloud. She answers her phone and we witness a conversation between the woman and her friend:

> Hello my friend, I'm good, and you? Actually I'm not good, yes. It's this internet thing, this Facebook thing. [...] I posted something about the white people, saying that they should give our land back, you know. Yes.. And they banned me from Facebook, can you believe it?[10]

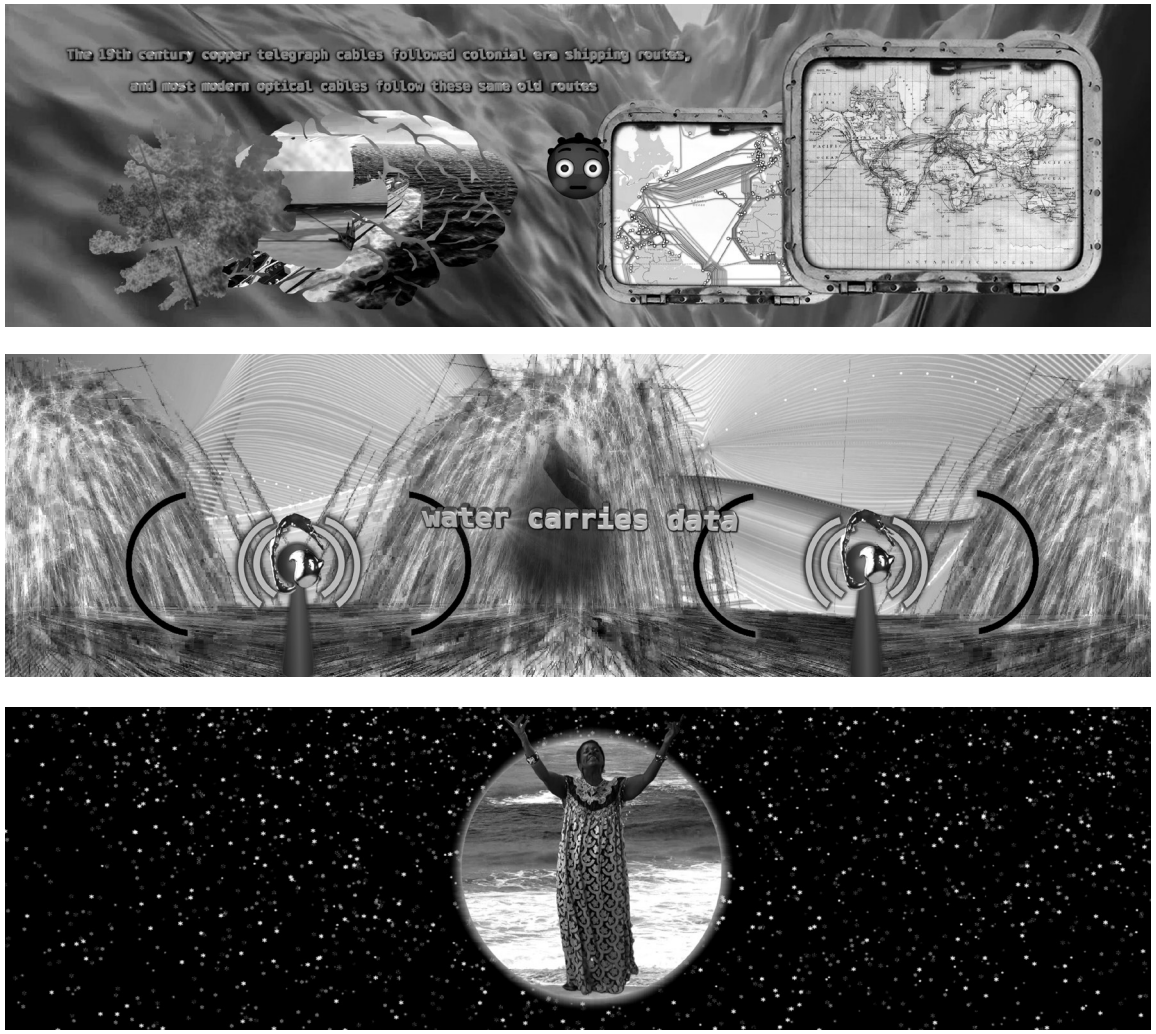
6 Ana Alacovska, Peter Booth, and Christian Fieseler, "The Role of the Arts in the Digital Transformation," *Artsformation Report Series*, 2020, 31, https://doi.org/10.2139/ssrn.3715612.

7 K Smets et al., eds., *The Sage Handbook of Media and Migration* (London, 2019).

8 Edward Akintola Hubbard, "Tabita Rezaire: Symbiose Immaculée," (Lecture, IMPAKT), https://rezaire.impakt.nl/#Extra_Content-critics_opinions.

9 Tabita Rezaire, "Prologue — Decolonial Healing : In Defense of Spiritual," in *The Sage Handbook of Media and Migration*, ed. K Smets et al. (London: Sage Publications, 2018), xxix–xliv.

10 Tabita Rezaire, "Deep Down Tidal," 2017, https://vimeo.com/248887185.



↑fig. 1 Tabita Rezaire, Deep Down Tidal, 2017, still from video, 3840 × 1080, courtesy of the artist and Goodman Gallery, South Africa.

After this conversation, the video changes to a dark background of pouring rain, while golden letters circle in the middle of the screen. We read: "This phone call was brought to you by electronic colonialism."[11]

Within this first minute of *Deep Down Tidal*, we are taken from a personal experience of digital exclusion to a theoretical conceptualization of the politics from which this experience can be understood. As we learn from the scenes that follow, which are filled with visuals of Google searches that expose the system's racist logics, the internet facilitates electronic colonialism, which Rezaire defines as "the domination and control of digital technologies by the West to maintain and expand their hegemonic power over the rest of the world."[12] Originally, the notion of electronic colonialism was coined by media scholar Thomas McPhail (who built on the work of sociologist Herbert Schiller), to describe how the importation of software, hardware, and technological know-how from the Global North by southern countries is accompanied by the establishment

11 Rezaire, "Deep Down Tidal".

of values, norms, and expectations from the Global North. Electronic colonialism thus produces asymmetric dependency relations between the Global North and South that are not only material but also cultural and social.[13] The immense power of Western companies, such as Apple and Google, is an example of this form of control, as these companies produce new dependencies on their technologies and shape specific forms of communication and knowledge production while erasing or disabling others.[14] Different from settler colonialism, electronic colonialism takes cyberspace as its territory of occupation, aiming "to control not land as in the colonial days but to influence and monitor our minds, desires, beliefs, lifestyles and consumer behaviours, through algorithmic processes, seeking to transform us into the updated colonial subject: a consumer and producer of data."[15] Through electronic colonialism, the Global North aims to uphold and expand its hegemonic position, both on an epistemic level (controlling what knowledge is made accessible and what is obliterated) and through re-establishing hierarchical relations of dependency with the Global South, where natural resources and human labour are exploited to create software and hardware.

In *Deep Down Tidal*, viewers are confronted with a plethora of audio-visual information which reveals how electronic colonialism impacts online communication and knowledge production, and how offline forms of domination, exclusion, and discrimination are reproduced online. According to Rezaire, we should critically investigate to what extent the internet "becomes another layer of oppression or a potential tool for emancipation."[16] Deconstructing the myth of the internet as universal, and as a medium that necessarily enhances freedom, *Deep Down Tidal* forces viewers to consider how it reproduces structures of exploitation and exclusion (including sexism, racism, homophobia, transphobia, and classism).[17] This is an important step in the process of care and repair as it creates awareness of the technology-driven wounds that exist and require attention, which is crucial in becoming response-able.[18]

In order to critically analyse and expose the politics of the internet, and how it has been shaped through electronic colonialism, *Deep Down Tidal* suggests to not only critically reflect on current structures of exclusion, but also look beyond the present and consider the internet's history. In order to accomplish this, the video work attends to the physicality of the internet. Visually, we are taken along in a virtual, deep-sea dive in order to face the colonial hauntings of the internet's infrastructure. Starting from above the water, the animations that appear on screen move us underneath the waves, and descend until the bottom of the ocean. Animations of fibre optic cables appear, which is the technology that transmits information in the form of light pulses along a plastic or glass fibre, and we see how they are installed at the ocean floor. From the visuals and voiceover, we learn that these cables embody the infrastructure of the internet and carry our digital data.

While appearing wireless and 'up in the air,' physical fibre optic cables on the bottom of the ocean are crucial for making wireless connections possible. As *Deep Down Tidal* reveals, the majority of submarine networks of wires follow historical colonial shipping routes. Even though undersea cables are a fundamental element of the internet, their deep sea locations and their connection to colonial infrastructures are rarely discussed.[19] By visually tracing the physical conditions of the internet and urging us to listen and pay attention to these hidden infrastructures, *Deep Down Tidal* evokes reflection on the ways in which colonial worldviews are perpetuated in the logics of the internet today — thereby drawing the interconnections between the internet's material conditions and its discursive formations. By exposing the internet's colonial hauntings, and its contribution to the exploitation and pollution of the water and the planet, *Deep Down Tidal* points the spectator's gaze at the injuries and harms that the internet produces. Thereby, it becomes possible to see the internet as a politicised space rather than a neutral and universal one. Making these wounds visible is an important step towards a process of care, as it opens up the possibility for becoming response-able and engaging in a process of repairing them.[20]

Caring for alternative futures

The politics of care and repairment that *Deep Down Tidal* activates embodies both a critical inquiry of the internet's historical and present conditions, as well as a proposition for unlearning the internet's wounding mechanisms to move towards the future with a decolonial practice of healing. In *Deep Down Tidal*, this healing practice takes a rather speculative form that is rooted in spirituality and the unlearning of dominant Western ideas about information and communication technologies. The video-essay provokes the spectator to reconsider water as a source of knowledge and connection, and asks what we can learn from it if we start to listen to it carefully.

In *Deep Down Tidal*, water appears in a variety of forms: as an ocean, rain, a fountain, a river, and a flood. The video draws a range of semantic connections that exist between water and the internet, such as 'data flows' and 'data streams.' Halfway through the video, signs of pollution and destruction (including plastic waste and symbols of nuclear energy) and images of refugee boats and insulation blankets appear on top of this water imagery. Together, they signify how the water has been traumatised and wounded, and demand our responsibility to pay attention to it. This call for responsibility is explicitly repeated in a lecture by a woman whose face is centralised on screen. While we see and hear her speak, a range of deeply concerning animations appear in which water floods urban spaces and breaks through concrete walls. Through this audio-visual stream of information, the spectator is made aware that water is

12 Rezaire, "Prologue — Decolonial Healing : In Defense of Spiritual," xxxv; Rezaire, "Deep Down Tidal."; Safiya Noble's "Algorithms of Oppression: How Search Engines Reinforce Racism" (2018) extensively discusses the discriminatory biases that are embedded in the algorithms of search engines such as Google.

13 Media scholars Nick Couldry and Ulijas Meijas (2019) have made a similar argument in relation to processes of datafication, which they understand as producing 'data colonialism'.

14 It must be noted that the world's most powerful technological companies increasingly include Asian companies as well, such as Huawei and Samsung. *Deep Down Tidal* does not address this.

15 Rezaire, "Prologue — Decolonial Healing : In Defense of Spiritual," xxxiv.

16 Rezaire, "Prologue".

17 Wendy Hui Kyong Chun, *Control and Freedom. Power and Paranoia in the Age of Fiber Optics* (Cambridge, London: MIT press, 2006).

18 I refer here to Rezaire's understanding of "response-ability, our ability to respond to a situation", in Rezaire, "Prologue," xlii.

19 Nicole Starosielski, *The Undersea Network* (Durham: Duke University Press, 2015), 14.

20 Alacovska, Booth, and Fieseler, "The Role of the Arts in the Digital Transformation," 31, 32; Rezaire, "Prologue — Decolonial Healing : In Defense of Spiritual."

more than just the infrastructural context of the internet: it is an entity that has been traumatised because it has not been taken care of properly. Now it speaks back through flooding domesticated land, which *Deep Down Tidal* defines as a form of 'aquatic revenge.'

This call for responsibility is not only a moral demand, but also a proposition to consider water as a source of knowledge.[21] Building on knowledge from cultures of the Americas, the African continent and their diasporas, in which water is understood as "vehicle for knowledge transmission."[22] *Deep Down Tidal* suggests that water "has the ability to memorise and copy information, disseminating it through its streams."[23] Similar to the internet, water forms an infrastructure for connection and transmitting information, while also functioning as a source of knowledge itself:

> From Atlantis, to the 'middle passage,' or refuge seekers presently drowning in the Mediterranean, the ocean abyss carries pains, lost histories and memories while simultaneously providing the global infrastructure for our current telecommunication system. Yet our waters do not only carry loss: our waters are fertile grounds, which have known many stories; remember, they came before Columbus. The tales of haunting spirits, forgotten songs and ancient navigations of our oceans can still reach us as water remembers. If only we listen.[24]

Approaching water as a source of knowledge and interface for connection, *Deep Down Tidal* evokes reflection on what we can learn if we start to look at it more closely. For Rezaire, this seems to mean (among others) learning about erased memories, transgenerational and transcontinental histories, and establishing spiritual connections. A different but related interpretation can be found in cultural theorist Simon Gikandi's notion of the Atlantic as the 'crypt.' As Gikandi argued, the bottom of the Atlantic Sea functions as a vault which stores erased and forgotten common histories of slavery and modernity.[25] Water itself thus opens up transgenerational and transtemporal connections: it was there before the internet, and it connects us to past and future generations.

After having set out the urgency of considering water as a source of knowledge, *Deep Down Tidal* shifts radically in tone. From the threatening, sinister, and information-saturated scenes, the pace of the video slows down and becomes much more optimistic. A woman appears in front of a circular background with an image of ocean waves hitting the shore. She starts to dance and sing about and *for* the water. The video's mode of address changes: rather than understanding, the spectator is encouraged to experience what appears on screen. Here, Rezaire turns to the body as a site of resistance, and seduces us to consider how spiritual practices of dancing and singing could function as an antidote to the wounds of electronic colonialism. It is a suggestion

21 This approach to water as a source of knowledge resonates with the interdisciplinary research field of 'Blue Humanities', which takes the Ocean — rather than the terrestrial — as a point of departure for the development of critical theory on the catastrophic planetary impact of climate change. (Ian Buchanan and Celina Jeffery, "Towards a Blue Humanity," *Symplokē* 27, no. 1–2 (2019): 11–14.)

22 Rezaire, "Prologue", xxxvi.

23 Rezaire, "Deep Down Tidal."

24 Rezaire, "Prologue", xxxvi.

25 Simon Gikandi, "Preface," in *Slavery and the Culture of Taste* (Princeton: Princeton University Press, 2011), ix–xvi.

to move away from our screens and connect with the Earth, to listen closely to what it needs to heal. Thereby, *Deep Down Tidal* hands us tools to engage in a politics of repairment and healing, and imagine an alternative future in which the Earth does not need to be abandoned and replaced, but is listened to and cared for. As multidisciplinary artist and educator Kylie Banyard asserted: "When artists seek out that which is generative and hopeful and put forward ideas and images of the world as it might be otherwise, it can trigger the utopian imagination within both themselves and their audience. This is the care work of artists."[26] Thus, rather than offering us a practical manual with 'quick fixes' to technology-driven exploitation and exclusion, *Deep Down Tidal* uses artistic critique and utopic speculation to envision a different future, which is an artistic form of care in itself.

CONCLUSION

In a time of ever-growing digital dependency, Rezaire critically intervenes into the structures of the internet to shape a process of unlearning: one in which we, as spectators, are encouraged to question the internet's taken-for-granted myths (the internet as cloud, as universal, and emancipatory). *Deep Down Tidal* politicises cyberspace and shows how colonial domination continues in digital form. This artistic intervention is made in the visual language of the internet and can be watched online in order to instigate a dialogue from within the system itself. As I have sought to show in this text, Rezaire's intervention can be understood as practice of "care against technological carelessness," in which the internet's destructive and violent politics and history are exposed.[27] While the work does not propose to abolish digital ICT's altogether, it does explore alternative approaches to information and communication by foregrounding water as a source of knowledge and an infrastructure for connection. In doing so, *Deep Down Tidal* invokes our responsibility to care for the Earth through embodied healing practices in order to re-imagine our digital future.

ACKNOWLEDGMENTS
I would like to thank Tabita Rezaire for granting permission to reprint images of her work.

Rosa Wevers (MA) works as a PhD candidate and teacher in Gender Studies at Utrecht University. She analyses how contemporary art exhibitions confront visitors with critical perspectives on surveillance and engage them in strategies of resistance. In 2021, she curated the exhibition *Face Value*, in collaboration with IMPAKT and the Nederlands Film Festival.

26 Kylie Banyard, "Remaining Alert to an Ethos of Care. The Responsiveness of Artistic Process," in *Care Ethics and Art*, ed. Gretchen Coombs and Jacqueline Millner (New York: Routledge, 2022), 95.

27 Alacovska, Booth, and Fieseler, "The Role of the Arts in the Digital Transformation," 31.

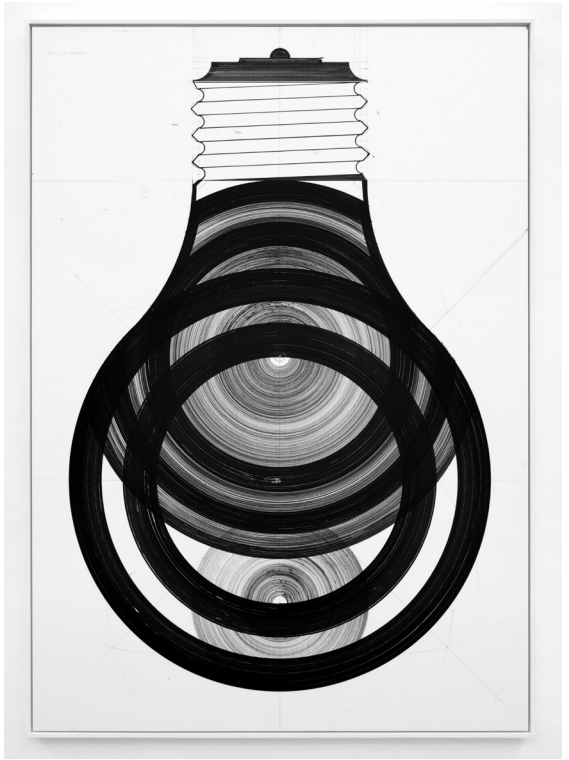
ARTIST CONTRIBUTION

Jean Katambay

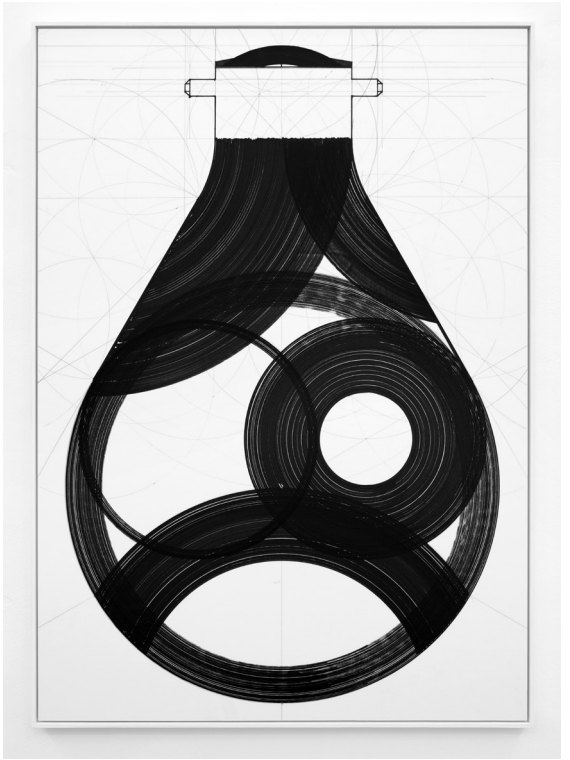
Jean Katambayi Mukendi is a visual artist based in the Democratic Republic of Congo. His works are deeply intertwined with themes such as technology, mechanics, geometrics, and electricity. He combines his training as an electrician with the influences from his daily life within his works to find solutions for issues within Congolese societyand reflect on the country's depletion of its enormous energetic resources.

The *Afrolampes* are a series of sophisticated drawings inspired by electrical circuits and technological studies. Each drawing represents a philosophical idea constructured within the technical blueprint of a lightbulb. The exacting line work distracts from its technical, schematic origin and brings the drawings closer to map-like images than technical studies. Thus, the artist subtly inflates issues of technological advances with geopolitical issues.

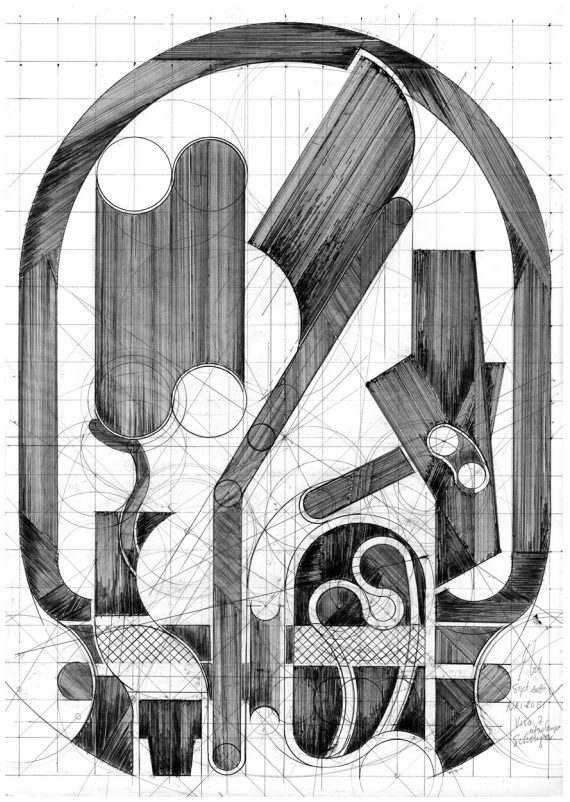
↑fig. 1 Jean Katambayi, *Afrolampe #4,* 2016, ballpoint pen and marker on paper, 83 × 58,6 cm



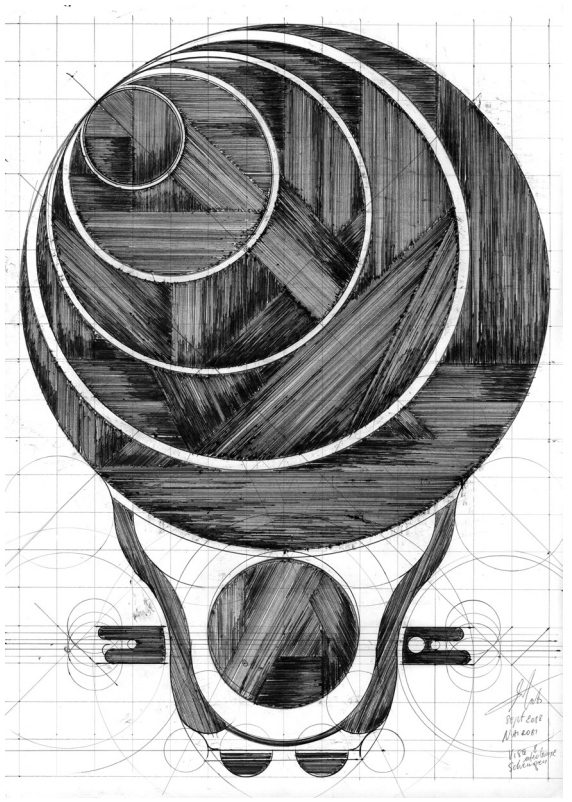
↑fig. 2 Jean Katambayi, *Afrolampe #1,* 2016, ballpoint pen and marker on paper, 83 × 58,6 cm



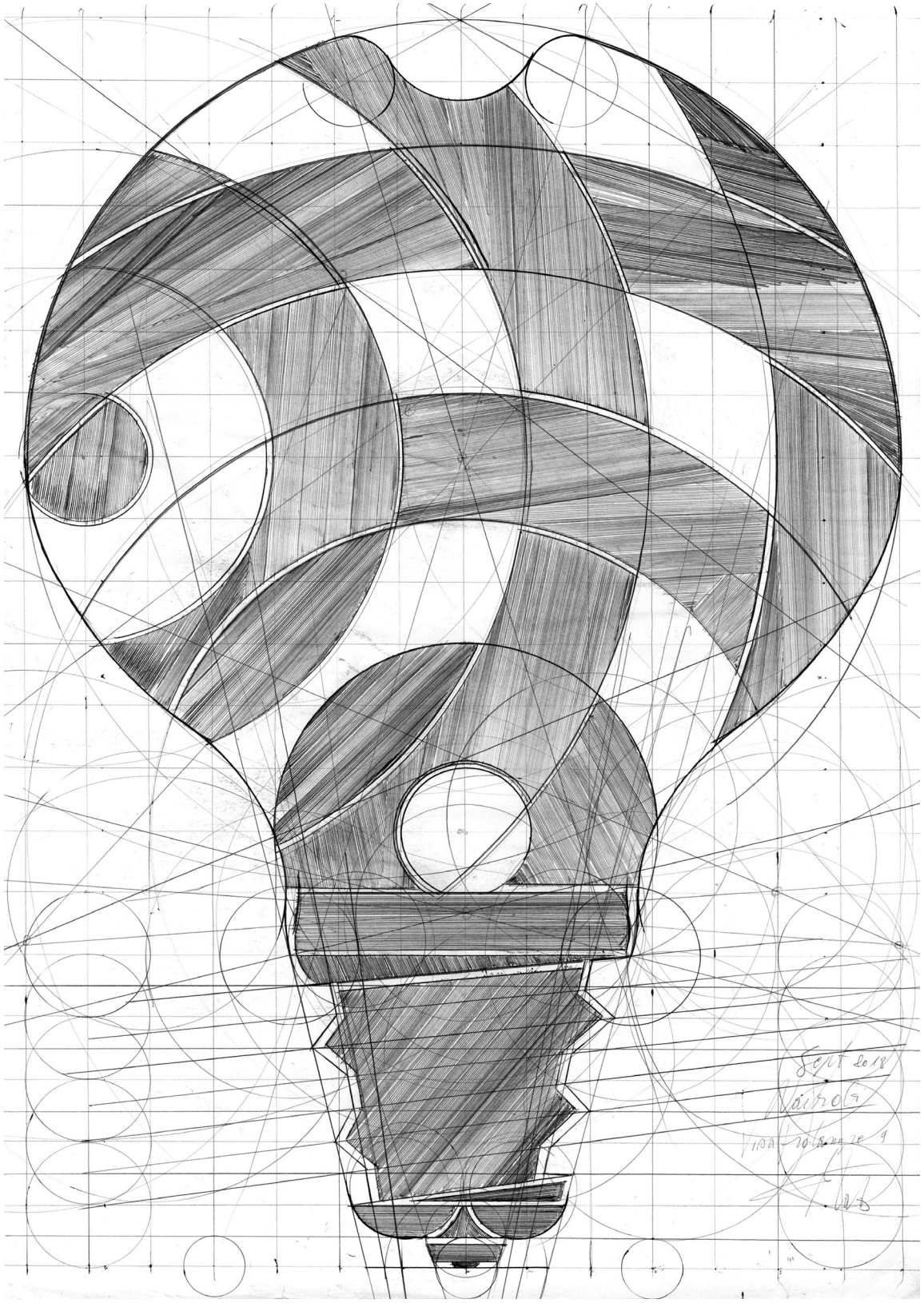
↑fig. 3 Jean Katambayi, *Afrolampe #2,* 2016, ballpoint pen and marker on paper, 83 × 58,6 cm



↑fig. 4 Jean Katambayi, *Visafrolamp,* 2018, 42 × 29 cm



↑fig. 5 Jean Katambayi, *Visafrolamp,* 2018, 42 × 29 cm



↑fig. 6 Jean Katambayi, *Visafrolamp,* 2018, 52 × 29 cm

“THE
BODY?
YOUR
BODY?

IT
CONSISTS
IN
A
BUNDLE
OF
RHYTHMS.”

Henri Lefebvre and Catherine Régulier, “The Rhythmanalytical Project.”

FREEDOM OF SLEEP: A PRACTICE OF RHYTHMING OTHERWISE

Anabelle Lacroix

"Rhythm produces political effects."[1]

Walking to work after a night of not sleeping, the lit cityscape feels white-washed by the heightened intensity of the sun. Late, I am speed-walking to the gallery and noticing the irregular pace of the public on a busy street. Heads go up and down, as shoes tap in desynchrony during this morning peak hour, like a group of metronomes that are out of sync with each other. This souvenir imprinted in my mind is a reminder that there is something inherently rhythmic about human experience.

→fig. 1 Exhibition view *Freedom of Sleep*, April 21 — May 16 2021, Fondation Fiminco. Curator: Anabelle Lacroix. In view: Alexander Powers, *inputs outputs*, 2020, HD Video, 17'23 min (left); Amosphère, *Gathering the Light*, 2021, metal structure, headphones and mixed materials, variable dimensions (right); Johanna Rocard, *Batailles Nocturnes*, 2021, installation, vinyl jumpsuit, second hand clothing, beeswax, metal, dried flowers, latex, concrete (back); Félicia Atkinson, *A Forest Petrifies*, 2021, sculpture with fabric, vase and black ink, apples, ten prints mounted on brushed aluminium dibond panels 10 × 15 cm, sound installation for the listening space, variables dimensions. Photo: Martin Argyroglo.

"Freedom of Sleep" (April 21-May 16, 2021) was an exhibition and public program on the politics, poetics, and aesthetics of sleeplessness. It took place on a former pharmaceutical plant at Fondation Fiminco in the eastern suburbs of Paris, as one part of an ongoing curatorial investigation on the implications of desynchronisation between our bodies and society. Desynchrony is synonymous with asynchrony, a state of not being synchronous. In this project I use the term desynchrony with the prefix de- meaning "out of" to assert a process of undoing, or falling 'out' of rhythm. Today, sleep is a form of bio-capital that many of us track on our smartphones or manage with the support of the pharmaceutical industry who sell sleep tablets that have side effects which may be worse than not sleeping. It has become an economic priority for governments as a public health epidemic and threat to productivity. There is a search for every waking hour to be maximized. This relentless rhythm that is sometimes self-imposed is characteristic of cognitive capitalism — referring to labour that is not only executed mentally rather than physically, but also to the way our thinking process became affected by the commodifying logic of capitalism (i.e., how can I sleep less and be more effective?). Expressions like 'sleep hygiene' and 'social jetlag' are testimonies of a fascinating cultural syndrome, as ultimately our habits and their occurrence define us as a society.[2]

"Freedom of Sleep" explores wakefulness in a society beyond sleep. The exhibition combines different aspects of this topic, exploring our relationship to insomnia, time, and darkness through a large collective project. This essay will focus on how "Freedom of Sleep" opens a space of agency by intervening into rhythm — for *rhythming otherwise* — through the analysis of selected artworks across choreography, installation, sound, and video. As critic and essayist Jonathan Crary mentions, the "24/7 [society] is a static redundancy that disavows its relation to the rhythmic and periodic textures of human life."[3] "Freedom of Sleep" proposes ways of rhythming otherwise through the reappropriation of out of sync rhythms and unaccounted energy. In developing a "practice of rhythming," I follow artist Melissa Van Drie and sound theorist Carla J. Maier's notion which is anchored in *listening otherwise*, as a multisensorial practice allowing to feel rhythm and its machinery, "a critical practice of listening and sonic thinking."[4] Furthermore, I explore how rhythm is embodied at the intersection of the social and the technological, opening a space for agency.

Crary sees sleep as the last barrier to capitalism because it represents a pause, a break in our 24/7 society defined by productivity, acceleration, systematisation, and routinisation.[5] The value in Crary's analysis of the 'end of sleep' is that it highlights the incompatibility between the demands of the 24/7 society and us as humans. For Crary, being aware of this phenomenon provokes a deep feeling of disempowerment that kills any form of collective imagination we might build and share. He sees an important part of this trend lying in technology and its design. The constant illumination of screens in the 24/7 society more generally, he argues, keeps us awake only to distract us: it conceals capitalist reality with an "immense incapacitation of visual experience."[6] Moreover, as 40% of population in the West suffers from sleep disorders like insomnia, sleep is becoming a rare commodity; sleep is light, sleep is interrupted, sleep is not a sanctuary.[7] The 24/7 society continues to operate during our sleep, online platforms and social media continue generating revenue around the clock. Further to this, sleep researchers and anthropologists have demonstrated the porosity between sleep and socio-political contexts. The frontier that Crary saw in sleep should not idealize and romanticize it, but rather be framed as a site of resistance. As such, "Freedom of Sleep" proposes to look at insomnia as *pharmakon* — simultaneously a poison and a cure — by reappropriating wakefulness as a refusal to dominating rhythms, and a sight of insight that addresses this visual incapacitation.

1 Bernard Vandewalle, "Le rythme comme schème politique" in Pierre Sauvanet, Jean-Jaques Wunenberger, *Le rythme et philosophie* (Paris: Éditions Kimé, 1996), 41.

2 John Dewey, *Experience and Nature* (Chicago: Open Court, 1925).

3 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (London: Verso, 2014), 76.

4 Melissa Van Drie, Carla J Maier, 'Rhythming: a Manifesto'. *Sound Studies (2015)*, 2021, 1-18.

5 Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (London: Verso, 2014).

6 Ibid, 33.

7 Dr. Patrick Lemoine, email conversation with the author, 23 October 2020. More information can be found on https://www.sleepfoundation.org/how-sleep-works/sleep-facts-statistics.

During pre-industrial times, the night was bi-phasal and punctured by a period of wakefulness which was used for a range of activities such as farming duties (counting sheep, literally) or preparing for markets.[8] The exhibition therefore proposes to shift the focus on sleep, to turn to wakefulness through the critical aspect of rhythming, to explore rest against periods of activity as a patterning of expense of energy and its recuperation.

Rhythming Otherwise

The qualities of today's rhythmic time are beyond our bodily comprehension, as rhythms are not only cosmic, but technological and automated. Composer and environmentalist R. Murray Schafer writes, "the rhythms of the universe are of such magnitude as to be incomprehensible."[9] This observation is equally applicable to today's algorithmic governance whose rhythms are inscribed rather than felt, even though playbour[10] and time on screens affect circadian rhythms. There is nonetheless a dominant rhythm perceivable in the contemporary global, an extractive/colonial rhythm mining bodily energies and earth resources also known as social synchrony. Synchrony, meaning 'at the same time,' comes from the ancient Greek 'with' and 'time.' Rhythm is not only a structuring aspect of society and lived experience; it dominates because it institutes and normalizes. For sociologist Robert Seyfert, "institutions can be described by their internal rhythms and frequencies [...] The institutionalization of a collective rhythm is usually guaranteed not only through the material and spatial arrangement of an institution but also through temporal organization."[11] They operate through difference and repetitions: such rhythms may guarantee the continuation of an institution (its repetition) but also allow for internal change (difference). For sociologist of acceleration and alienation Hartmut Rosa, this rhythmicity is a connecting factor between broader areas of life. Rosa defines desynchrony as the gap between social and extra-social spheres, accounting for different speeds that occur at once (i.e., geological, social, political, historical), and providing insights on the potential for changing pace.[12]

8
A. Roger Ekirch, *At Day's Close: Night in Times Past*, (London: Orion, 2006).

9
R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World*, Rochester, Vt.: [United States]: Destiny Books ; Distributed to the book trade in the United States by American International Distribution Corp., 1994, 226.

10
A new term defined in 2005 as a combination of play and labour by Julian Kücklich in relation to gaming later applied to social media. See Julian Kücklich , "Precarious Playbour: Modders and the Digital Games Industry," *The Fiberculture Journal*, Issue 5 (2005).

11
Pirkko Husemann, "Glossary." *Performance Research* 20, no. 4 (2015): 132.

→fig. 2 Exhibition view *Freedom of Sleep*, April 21—May 16 2021, Fondation Fiminco. Curator: Anabelle Lacroix. In view: Debris Facility Pty Ldt, *Schedule*, 2021, prints on paper and 12 audio pieces, 10 sec. (left); and Tom Smith & Jon Watts, *Waking Life: The Dreamwork Model*, 2020, HD Video, 17'38 min (right). Photo: Martin Argyroglo.

Rhythm is constituent of chronopolitics, normalization, and a site of intersectional politics. American theorist Elizabeth Freeman deconstructs social synchrony by developing the notion of queer time and familial arrhythmia.[13] Freeman speaks about arrhythmia to describe the feeling of unease in the day-to-day experience of heteronormative rhythms structured around family life. The experience of not fitting, she writes "often feels both like having the wrong body and like living in a different time zone."[14] She examines queer temporal disorders in art, literature, and cinema as "moments of asynchrony, anachronism, compression, delay, ellipsis, repetition [...] and ways of breaking apart what Walter Benjamin calls homogeneous empty time."[15] In queering time, Freeman reaffirms that rhythm is not a natural base-line, but is culturally and socially constructed. In doing so, she opens a new space of agency.[16] This is undertaken in several ways throughout the exhibition. One example is found in the work of artist-corporation Debris Facility Pty Ldt., against hetero-chrono-normativity. "Schedule," a series of posters and sounds of alarm bells, maps an eight-day schedule for the activities of the Debris Facility Pty Ldt. queer para-corporate entity. The simple aesthetic of the poster evokes online calendars that synchronize across

→fig. 3 Alexander Powers, *inputs outputs*, 2020, HD Video, 17'23 min. Courtesy the artist and Liquid Architecture.

12
Hartmut Rosa, *Aliénation et accélération : vers une théorie critique de la modernité tardive* (Paris :La découverte, trad. Didier Renault, 2010), 94.

13
Elizabeth Freeman, *Time Binds: Queer Temporalities, Queer Histories* (Durham [NC]: Duke University Press), 2010.

14
Ibid, 172.

15
Ibid, xxii.

16
Ibid, 271.

devices, whilst being completely reconfigured through 240 minutes units in a day. For Debris, the schedule is a speculative contract which highlights administrative forms and their embedded power relations.

The embodiment of labour and a shift in power relations is displayed through the choreography work by artist Alexander Powers. In "inputs, outputs," two performers simultaneously repeat a set of high-speed gestures until reaching a point of exhaustion, with moments of pause. Gestures include squatting whilst throwing their arms back and forth as fast as possible, running short laps, or balancing with tension from a rope that ties the two performers from the waist, and tremor. A tremor is a twitch, a fast involuntary oscillation in the muscles, known in therapy to deal with trauma, shaking off somatic information stored in the nervous system. The work evokes Fordist repetitive movement however, yet accelerated to exhaustion and expelled as trauma through vibration (tremor). Developed by the Ford Motor Company at the beginning of the 21st century for mass production, Fordism is a method of production based on the isolation of manufacturing steps and the repetition of each worker's movement. It increased efficiency by setting a strict rhythm for work and accounting of worktime with the use of timecards.[17] In this work, Powers searches for the breaking point in a wider investigation of exhaustion itself. Movements are repeated until they are no longer tenable, and the sound of the breath is caught on a lapel microphone and amplified. Alternating between scenes, the work deploys a constant rhythm whereby the performers are desynchronized from each other in an exercise in turn-taking. This desynchrony brings attention to the individual endurance of each body. The rope between the two gender non-conforming performers brings attention to movements and the politics of representation of the body.

Time management is a colonial force imposed upon the body in many ways. This is seen in hetero-chrono-normativity and in relation to models of labour such as Fordism. It is the tool of oppression of colonialism, inseparable from the growth project of capitalism. In "Freedom of Sleep," this was highlighted by the search for pause. This is seen in the practice of the collective Black Power Naps, founded by Navild Acosta and Fannie Sosa, that advocates for nap time as a form of retribution from colonial extraction over Black bodies initiated with the slave trade. Self-defined as a "sculptural installation, vibrational device and curatorial initiative that reclaims laziness and idleness as power,"[18] Black Power Naps' practice combines self-care and disobedience. For the exhibition, the artists devised a maquette in the form of an installation consisting of tie-dye fabrics, a video work, magazines made by the collective, and photographs. The work addresses the sleep gap between white and Black Americans, as well as the ongoing experience of racism which comes at a cost, creating physical and psychological fatigue. In promoting napping, Black Power Naps steps out of dominating Western rhythms. In addressing labour structures, both Black Power Naps and Debris Facility Pty Ldt. actively propose an alternative rhythm. By

17
More than a method of production, Fordism also describes the societal order of post-war modernity.

18
Artist statement, https://blackpowernaps.black/.

←fig. 4 Black Power Naps, *Black Power Naps Maquette*, 2021, installation with fabric, candles, Black Power Naps Magazines and videos, photographs on matte paper, variable dimensions. Photo: Martin Argyroglo.

↓fig. 5 Tom Smith & Jon Watts, *Waking Life: The Dreamwork Model*, 2020, HD Video, 17'38 min.

rhythming otherwise, these projects explore how desynchrony articulates an intersectional critique towards the modernist project whereby growth, hetero-chrono-normativity, and colonialism are interlinked, or what philosopher and curator Paul B. Preciado calls "the pharmaco-pornographic infrastructure of capitalism."[19] More than this, the practices are embodied and lived by the artists themselves.

Work is not the only rhythming element of modernity. For philosopher Bernard Stiegler, time-based media such as cinema, television, and radio, are responsible for the 'mass synchronization' of modern society.[20] These technologies allowed for the alignment of social experiences on a large scale. Stiegler's critique of mass media is that it contributes to the bio-political project of capitalism. Previous examples of artworks opened a space for desynchrony (for falling out of rhythm) as an inscription in the body within a social context. This agency only appears through the careful management of time and its repeated occurrence. Other artists have questioned this potential altogether. What if rhythms were to disappear into a continuum? In the video "Waking Life: The Dreamwork Model," artist and musician Tom Smith imagines a future society having achieved the elimination of sleep and absolute productivity. The work is a speculative fiction set in 2422. The video is generated by GANs (generative adversarial networks, a type of machine learning algorithm) and is told by a voice-over artist in a manner that mimics "sleep stories" intended as sleep aids, found on popular apps such as *Calm*. In the story, the elimination of sleep in a society is slowly developed through a series of pharmaceutical and technological advancements, which are based on both real and imagined research, as well as current military techniques for wakefulness.

From the perspective of the narrator, these advancements are benefits to society that replicate and intensify the historical inscription of technologies in our everyday lives. Here, algorithmic governance is extended to a point of no return where media consumption becomes a survival mechanism, as a "Dreamwork" neural network replaces the production of dreams. Smith asserts that labour and one's dreams are already technologically conditioned, which expands his critique of the wellness industry. The artist plays upon the ubiquity of media, shifting from a society of spectacle to one where media is an imperative to a survival as resource. Synchrony no longer applies as a model. As such, this work — and others in the exhibition — address a post-industrial neoliberal context, moving beyond the repetitive concerns of the factory, to investigate sleep's reconfiguration in our dematerialized 24/7 society.

"Freedom of Sleep" sought to open a space of agency by intervening into rhythm — for *rhythming otherwise*. Insomnia was a departure point of the exploration of society's changing rhythms. Specific artworks in the exhibition explored desynchrony through poly-rhythmia, changing pace, and moments of pause, thus developing a practice of rhythming otherwise and establishing a critical engagement with normalcy, systemization, and optimization. Rhythming otherwise is a multisensorial practice which is evidenced in both the artists' attention to time's inscription onto the body and the importance of the sonic aspect of some of the artworks: Debris Facility's alarm bells, Alexander Powers' breath in choreography, and the tone and cadence of the narrative voice in Tom Smith's work. These works suggest that the endurance of time is not only a matter of personal feeling, relating to political histories of servitude and normalization with global resonances. "Freedom of Sleep" allowed me to develop the notion of desynchrony as a critical framework and as a specific mode of rhythming otherwise. Desynchrony as a practice was further explored curatorially. This was done with the desynchronisation of exhibition and public programs. Events which took place before and after the show over a period of a year and a half, and sometimes all night long. As such, desynchrony opens other ways of curating and relating in and out of time.

Walking to work after a night of not sleeping, my eyes are burning. As I am walking, my gaze moves across the buildings on the street — up and down — and onto the crowd, attuning to rhythm and velocity before losing myself in the blue sky. I wander until my body and mind meet on my wrist, on the mechanics of my watch.

Anabelle Lacroix is a curator and writer. She is particularly interested in experimental forms that involve performance, sound, speech, and publishing — including radio. She is a current PhD candidate at UNSW Art and Design in Sydney, a recent curatorial fellow at Fondation FIMINCO in Paris and an editor of *Flaneur Magazine*, Issue 9.

19
Paul B. Preciado, *Testo Junkie : Sex, Drugs, and Biopolitics in the Pharmacopornographic Era* (New York, NY: The Feminist Press at the City University of New York), 2013.

20
Bernard Stiegler and Stephen Francis Barker, *Technics and Time, 3: Cinematic Time and the Question of Malaise* (Stanford, California: Stanford University Press), 2011.

COUNTER-ALGORHYTHMICS AS PREFIGURATIVE DANCES OF COMMONISM

Shintaro Miyazaki

An algorhythm is a cacography of algorithm — what engineers, programmers and computer scientists call a sequence of step-by-step instructions readable to machines which operate, execute, and compute automatically. Algorhythm is meant as a sort of ironic misspelling, since algorithms are often understood to be abstract, symbolic, and immaterial sequences of pure meaning, but of course there is no such thing as a pure idea or symbol nor an immaterial process. Algorithms, therefore, are always also algorhythms; they need to get materialized as machinic signals and pulses within specific frameworks of timing and spacing. Algorhythms are the dirty and concrete materializations of algorithms. With the notion of algorhythm, I intended to emphasize both the rhythmic mode algorithms operate in, and their dirtiness; not so much in a socio-techno-political meaning that came later, but foremost as a prioritization of the material and physical over the symbolic and mathematical.[1] This was also a move to differentiate synchronized exactness and full control from the slightly uncontrollable real and its inclination to the impure.

The first time I had this idea was more than fifteen years ago in 2006, while writing my graduate thesis in media studies at University of Basel, Switzerland. For the next five years, I kept the idea for a PhD dissertation, fleshed it out and later defended it in 2012 at Humboldt-Universität zu Berlin. While the world around me changed slowly from the pre-smartphone era via a global financial crisis into the current nightmare of social media, surveillance, data extraction and the rise of right-wing populism and fascism, I was still stuck in my self-induced bubble of German media studies. Here I was influenced by post-structuralism and the writings of Friedrich Kittler, Wolfgang Ernst and Bernhard Siegert (the latter two are the most prominent disciples of the first). *Medienwissenschaft*, as it is called in German, has been institutionalized in the early 2000s and was in a sort of defence mode, meaning that it first had to cultivate its own field and enclose it, thus operating under the dictates of capital and liberalism. The fascination for the technoscientific aspects of media and information technologies made some of us, including me, sort of blind or numb to socio-political aspects. I wanted to understand first how a computer and how 'the internet' operate technically in order to understand their cultural and aesthetic effects. It was often via the aesthetics, where the societal was glimpsed, but usually I ignored these aspects.[2]

My turn towards the political came through three overlapping observations and their consequences. Firstly, around 2012, when Kristoffer Gansing became the director of *transmediale* in Berlin for the next eight years, the community around that festival started to slowly notice that 'the internet' somehow became continuously boring, profit-driven and disappointing. In the summer of 2013, there was a conference inspired by Fred Turner's *From Cyberspace to Counterculture* at Haus der Kulturen der Welt in Berlin, which helped me to historically contextualize this feeling by learning about the interference fields of cybernetics, psychedelic counter culture, cyberpunk and early internet enthusiasm. Secondly, global warming became more tangible during these years: 2013 had a very cold March with snow in Berlin and a heatwave in the summer. The environmental humanities emerged as a discourse, which helped to understand better what was happening. I also started to read beyond post-structuralism via political philosophers such as Franco Bifo Berardi offering explanations of how our anxieties are linked to capitalisms,[3] which led to a re-reading of both volumes of *Capitalism and Schizophrenia* by Felix Guattari and Gilles Deleuze.

This re-reading, this time, was not due to an interest in networks and machines exclusively, but entangled with the question of how these are linked to our desires, feelings, to authoritarian structures and value-creation machineries. While offering critical perspectives on capitalist machinery, all three thinkers also offer ways to link critique to aesthetic processes. For example, in *A Thousand Plateaus,* the notion of rhythm and the ritornello is quite important.[4] And thirdly, around 2015-6, the rise of Big Tech companies such as Alphabet Inc, Facebook Inc (now Meta Inc), Apple, Microsoft, and social media provoked many media studies scholars globally and even in the German-speaking context. The entanglement of venture capital, (neo)liberal rhetoric, and Silicon Valley mentality with digitality and digital culture became slowly apparent also to ignorants like me. I understood that digital culture is thoroughly and to the core intermeshed with capitalism and its profit-driven coercions. Some foresighted German colleagues such as Jens Schröter and Till A. Heilmann had already started to argue for a re-embedding of Marxism and critical theory into media theory, while at the same time not abandoning the media archaeological perspective.[5] With such a combination you would not lose the closeness and expertise on media technological matters, processes, algorithms and materialities. At the same time, you would be able to see and work out the negative, undesired aspects of digital culture while getting a glimpse into how you could change its technological workings and logics to counter the profit-driven machinery of mainstream digitality.

Algorhythmics has been theorized by myself as an analytical tool and aesthetic approach to inquire 'what is going on' in digitality in order to hear and listen to

1 See for example Shintaro Miyazaki, "AlgoRHYTHMS Everywhere: A Heuristic Approach to Everyday Technologies," in *Off Beat, Bd. 26, Thamyris/Intersecting: Place, Sex and Race Online* (Brill | Rodopi, 2013), 135–48; and Shintaro Miyazaki, "Algorhythmics: A Diffractive Approach for Understanding Computation," in *The Routledge Companion to Media Studies and Digital Humanities* (New York; London: Routledge, 2018), 243–49.

2 Early gateways to more critical writings might provide, Shintaro Miyazaki, "Going Beyond the Visible: New Aesthetic as an Aesthetic of Blindness?" in *Postdigital Aesthetics* (Palgrave Macmillan, London, 2015), 219–31, https://doi.org/10.1057/9781137437204_17; and Shintaro Miyazaki, "Algorhythmic Ecosystems. Neoliberal couplings and their pathogenesis 1960-present," in *Algorithmic Cultures: Essays on Meaning, Performance and New Technologies* (Routledge Advances in Sociology), edited by Robert Seyfert and Jonathan Roberge (London/ New York: Routledge Advances in Sociology, 2016), 128–39.

3 Franco Bifo Berardi, *Heroes: mass murder and suicide* (London ; New York: Verso, 2015); or Franco Bifo Berardi, *Breathing — Chaos and Poetry*, intervention series 26 (Semiotext(e), 2018).

4 A ritornello is a musical genre with a rich history mainly between the 14th and late 18th century. It is a diminutive of the Italian word 'ritorno', meaning return. The common principle of all ritornelli is therefore repetition and iteration, which connects the term conceptually to rhythm. See Shintaro Miyazaki, "Ritornelli of Everyday Life. Epistemic Experiments with Information Technology," *Artnodes* 12 (2012), https://doi.org/10.7238/a.v0i12.1585.

5 Media Archaeology is inspired by Michel Foucault's concept of archaeology of knowledge applied to media. The notion of an archaeology of knowledge was formulated against histories of knowledge, which were more interested in the documents of the past, but not the materials of the past, as archaeologists would do, due to the lack of written documents. See Michel Foucault, *The Archaeology of Knowledge and The Discourse on Language, trans A.M. Sheridan Smith* (New York: Pantheon Books, 1972), here 138f.

the rhythms of machines, algorithms, computational networks and systems. In turn, counter-algorhythmics attempts to theorize how to counter, resist and transform undesired, discriminating, and extractive algorithmic systems and computational media into more desired, solidarity- and commons-oriented media environments. These alternative ways of living together are often called 'commoning.'[6] To counter means 'to go' or 'to engage against', while to encounter means 'to meet' or 'to come across', and thus is less aggressively narrow-minded, but more open and vague. As a noun, 'counter' refers to a tabletop over which accounts are made or persons meet — thus an object which stands in opposition. A counter is also a device that counts — a repetitive task for a human. As an adverb, it describes a way that opposes something. It operates as a prefix to something to oppose or to react to. So, counter-algorhythmics wants to propose alternative rhythms, timings and even dances, which oppose those offered and imposed on us by capitalist, profit-driven technology, media and networks.

Why dance?[7]

Dance provokes me to think about countering capitalist, profit-driven digitality in a fully embodied way: dancing as resistance of the body, but also of social organization as a dance of movements (uprising) and cooperation (self-organization). Dance is solidarity-driven. You dance together and not against each other. Here, I follow German dance scholar Gabriele Klein, a rather new intellectual ally for me, who theorizes dance as critical practice. Dance, according to her, "experimentally structures spaces of experiences [...] with different mode[s] of socialisation [and] communitarisation of subject formation."[8] Dance is made by muscular, mental, somatic and neural operations in our whole bodies, and in a group setting, requires multiple bodies co-operating together. Even a solo-dancer has learned to dance with other humans, not alone. Humans do not exist in isolation. I see dance not only as a social, but also media-based practice. If you want to dance, you need a space — an environment for it — and some sort of rhythm. In order to learn a dance, you need some sort of language and media. These are ways to store, transmit and process experiences. Dance is environmental, therefore mediating, it requires agency and is therefore not a sequence of spasms as a vegetative, involuntary reaction to passively received stimulation, but an active and learned act of encountering.

Dance starts with a position, a tension countering gravity, but then continues as an active oscillation of movement and counter-movement. A dance, furthermore, is made of instructions, of algorithms or operations, which invokes images of a choreography of automated machines, but this is only half of the picture. Dancing involves active work and energy, so it is coupled with an impulse, a signal from within an organism's environment (or its network, in case you see its whole body as a vast somato-sensory network) and

6
See for further literature on 'commoning' a collaboratively written article from a research project I directed in Basel, Switzerland (2018–2021), Selena Savic et al., "Toys for Conviviality. Situating Commoning, Computation and Modelling," *Open Cultural Studies* 4/1 (January 2020): 143–53, https://doi.org/10.1515/culture-2020-0015.

7
See my earlier work on counter-dancing, Shintaro Miyazaki, *Counter-Dancing, Architecture and Naturing Affairs* (Birkhäuser, 2020), https://doi.org/10.1515/9783035622164-023

leads to a reaction to this impulse, usually a body movement, but then the body needs to resist and instead actively move, foresee further movements and beats. It needs to learn to move with the signals — sounds, vibrations, waves, flashes, quakes and much more from the surrounding environment — by generating its own signals. Otherwise, we need to speak rather of synchronization, or alignment, or resonance. Dance goes one step further. It can begin with reaction and synchronization, but then also involves adaptation and somatic-neural plasticity. Dance is able to adjust, transform, change, design, improve. Dancing involves learning and pedagogy, thus knowledge production, but operates not purely discursively — meaning language or sign-based — but in a somatic, affective, and experience-based way.

My proposal is that dance in the context of counter-algorhythmics becomes a prefiguration of how an alternative digitality, and an alternative technological operativity could unfold in time and space. Prefiguration here is meant as an experimental practice and "a radically open-ended process, which nevertheless is oriented toward a plurality of distant, radically different futures."[9] Prefiguration is an attempt to embody the transformation one aspires to realize "on a much grander scale in the future" within one's own organisation, its structures, procedures, and protocols.[10]

Body and Media

I imagine counter-algorhythmics as a dance, where instead of bodies, whole media environments, networks, and infrastructures are cooperating via an ensemble and multitude of (bio)electromagnetic signals. Electricity generates a continuum and medium between electronic circuits and biological organisms. That is, for example, the basis upon which technological miracles such as cochlear implants are operating. These implants for humans suffering from severe hearing loss, where the mere amplification of the sound signal is not sufficient and neural hair cells are damaged, consist, firstly, of an hi-tech electrode surgically implanted into the cochlea. Secondly, a receiver part is also implanted into the head region above the ear; thirdly, a small digital signal processing device with an antenna is attached magnetically outside to the skin surface. Finally, a small wearable with a microphone is worn close to the ear. The signal transduction happens here not acoustically, but electronically via a direct stimulation of the nerve cells close to the hair cells by the electrode, which gets the algorithmically pre-processed and synthesized signals from the device with the microphone and therefore can, to a certain degree, simulate undamaged hearing ability.

While cochlear implants are highly embedded within profit-driven medical-electronics industry and are a part of the health and medical governance perpetrated by companies and the state, they build an interesting example for media situated between digital processing and biological organisms. Other examples for such media are bioelectric sensors, which measure

8
Gabriele Klein, "Dance Theory as a Practice of Critique," in Dance and Theory: Conference, Berlin, April 2011, ed. Gabriele Brandstetter and Gabriele Klein, *Critical Dance Studies* 25 (Bielefeld: Transcript, 2013), 137–49, here 139.

9
Mathijs van de Sande, "Prefiguration," in *Critical Terms in Futures Studies*, ed. Heike Paul (Cham: Springer International Publishing, 2019), 227–33, https://doi.org/10.1007/978-3-030-28987-4_36, here 232.

10
Ibid. 227.

muscle tension, turn the signals into data and are used for example to control a sound synthesizer. When data gets typed into an Excel sheet, the fingers dance on the keyboard. Similarly but in a reverse manner, built-in weight sensors on dance floors turn dance activity into data. Most of these examples are situated in a feedback loop, and in terms of body function, such feedback loops include a bodily ability called proprioception, the sense of self-movement and body position. Dancing with machines involves learning, as dancing without machines also does. A cochlear implant does not work immediately, otherwise one would merely react to machinic signals. Instead of 'becoming a machine,' one needs to describe the process a cochlear implant user goes through as an effect of learning, of adaptation and of resistance, and indeed, therefore as a process of 'dancing with the machine.'

Counter-algorhythmics as a dance conceptualizes computational media networks such as social media as somatic body-technology feedback systems.[11] When you dance, you are continuously changing your standpoint. You are in control, but you also get influenced by your co-operating agents. Dance is about self-determination in relation to others and the environment. Dance, then, is a performance of your self or what you think your 'self' is in order to lose yourself a bit. Dancing here becomes operational and becomes a program or body-mental script, with rules and open instructions for self-organization, cooperation and solidarity-oriented co-living. I propose that in order to gain full control of digitality and digital media, we need to imagine, and prefigure counter-algorhythmics as a dance of commoning.

Dancing and Commoning

Commoning is the activity of sharing, organizing, operating, and transporting so-called commons. Commoning is about dancing with, in and through these commons, which are firstly resources, data, organisms, but also structures and media such as a network, a machine or a factory. Secondly, they are owned by an open field of users, consumers, ordinary people, and activists. In my terms, commoning is an attempt to prefigure a society with less private property, no market, but more commons. Thereby, commoning attempts to untie societal networks from capitalist dictates and is about regaining self-control, solidarity-oriented freedom and bringing life into the cold, hostile, alienating space of neoliberal techno-capitalism. Therefore, commoning denotes the bigger scale and framework of what I described as counter-algorhythmics, but contrary to it, it often lacks the technological aspects.[12] Approaches and works describing practices of commoning sometimes ignore issues of technological mediation, and concentrate on cases where low-tech or even no-tech is favoured over hi-tech environments, assuming that many issues can get solved by direct face-to-face communication.

Theoretical work on commoning is mostly anchored in the social sciences, architecture or urban studies, which are less interested in what happens in-between humans, machines, technology and environment and how these mediatic signals become operational. But in order to imagine how organisation as rhythm and dance would unfold on bigger scales, careful practices and critical knowledge about the media of visualization, modelling, networking and computation are needed.[13] The notion of counter-algorhythmics as prefigurative dances of commoning wants to fill that lack of technology in commoning and at the same time attempt to keep a critical perspective on digitality. Furthermore, a commons is not merely something rational and instrumental shared together, but forms an affective and somatic environment and network of users and consumers — of people in need and those who produce or can offer goods and commons. Counter-algorhythmics is made of movements and signals which dance along, in and between such commons. These movements and signals are similar to processes of peer-to-peer-production as they try to bring production and consumption closer again without profit-driven price-mechanisms, competition, markets and ownership. They establish an attempt to form new networks of somatic body-technologies for living, surviving, and enjoying life.

Commoning is, in my opinion, a variant of the manifold manifestations of counter-algorhythmics, which is specifically adapted to operationalize both a dance of and within somatic body-technology-networks and a social movement of humans together with machines, animals, plants and more. Therefore, it is based on modes of storing, transmitting, processing, computing, networking and mediating commons in ways that foremost meet our needs and desires of food, housing, caring, reproduction, travel, culture and art without relying on the automatisms and algorithms of capitalist machinery. These are tasks asking for forms of computation, which dance with us, not against us.

By proposing counter-algorhythmics as prefigurative dances of CommOnism, I want to contribute to the planetary issue, that such an alternative form of society would not operate without a profound re-structuring and undoing of our current technological entanglements with capitalism and the affective-somatic realm of everyday life. The letter O in CommOnism signals a difference from communism, which as a term lost its prefigurative power a long time ago, at the latest in 1989. But this time, in 2022, it might be different... Counter-algorhythmics as prefigurative dance of CommOnism aims therefore for full development on all planetary levels of our media environments in our bodies, buildings, cities, landscapes and continents, and therefore could bring us to finally suspend and transform these matters, ourselves included, into something more adequate than what we have and are now. We need to start as soon as possible.

Shintaro Miyazaki is since 2020 junior professor in Digital Media and Computation (with tenure track) at the Department of Musicology and Media Studies, Humboldt-Universität zu Berlin. Between 2014–21 he was a senior researcher at Critical Media Lab of the Academy of Art and Design, University of Applied Sciences and Arts Northwestern Switzerland.

11 See for a seminal introduction into the interferences of dance and technology, *Transmission in motion: the technologizing of dance,* ed. Maaike Bleeker (London; New York, NY: Routledge, 2017).

12 Commoning has been theorized by many scholars and activists, but most importantly by Silke Helfrich, who adapted the term from Elinor Ostrom, who in 2009 won the Nobel Memorial Prize in Economic Sciences.

13 See for more literature on modelling and media irony, Shintaro Miyazaki, "Critical Re-Modelling of Algorithm-Driven Intelligence as Commonist Media Practice," *NECSUS_European Journal of Media Studies* 9, no. 1 (July 6 2020): 237–57, https://doi.org/10.25969/mediarep/14309 and Shintaro Miyazaki, "Solidarity-Driven Media Ironism and the Future Architect-Hacker-Citizen," *Contour Journal* no. 6 (November 18 2020), http://www.contour-journal.org/index.php/contour/article/view/media-ironism.

ABSTRACTS

CO-COMPOSING THE PERCEPTIBLE ACROSS AFFECTIVE, PAINTERLY, AND COMPUTATIONAL GENERATIVITIES

Nicole De Brabandere

The Generative Adversarial Network (GAN) of the website ThisPersonDoesNotExist.com creates images that sometimes achieve the photographic likeness of a person but also makes visible computational patternings that propose alternate organizations of form and ground, surface and substance, materiality and immateriality. Over-exposed hair forms into jewel-like adornments; depth of field appears dense as it converges with the appearance of material objects; the patterned arm of tortoise-shell sunglasses extends onto the lens reflection, rendering what appears to be a sodium lit skyline in a portrait otherwise lit by the midday sun. In this paper, I forward a series of beginnings and findings that mark instances and technicities of emergent perceptibility that coincide with the speculative logics of the machine-generated image. These beginnings and findings are made intelligible through the process of meticulously painting the GAN rendering and situating the generativity of the painting process as one that is situated, durational and co-compositional. The painting process thus offers an expanded and varied temporality with which to engage the heterogeneous and transversal constitution of machine-generated images, reconfiguring the sense of facticity (and corresponding affects of objectivity) conjured by photorealism.

FREEDOM OF SLEEP: A PRACTICE OF RHYTHMING OTHERWISE

Anabelle Lacroix

“Freedom of Sleep” was an exhibition at Fondation Fiminco, Paris, that responded to the 24/7 society characterized by shifts in our life rhythms and our relationship to labour and sleep. Through examples of specific artworks, I develop the framework of desynchrony to explore the potential of falling out of rhythm. I argue that desynchrony is a practice of rhythming otherwise that is embodied, at the intersection of the social and the technological, opening a space for agency. Furthermore, desynchrony articulates an intersectional critique towards the modernist project wherein growth, hetero-chrono-normativity, and colonialism are interlinked.

COUNTER-ALGORHYTHMICS AS PREFIGURATIVE DANCES OF COMMONISM

Shintaro Miyazaki

In this essay, I look back and forward to what the concept of algorhythm has meant and how it has transformed into its current configuration. It has been more than ten years since I came up with the concept of the algorhythm. Working with this concept, my essay proposes dancing as a way to look at digitality in order to imagine and theorize alternative ways, rhythms and algorhythms to live, to move, and to act within the networks of body-machines we are entangled with. I propose counter-algorhythmics as a form of resistance and eventually link this practice to the broader movement of commons-oriented activism sometimes also called commoning.

TURNING TO THE BIRDS
WALKING WITH CLIMATE FICTION

Natalia Sánchez Querubín, Sabine Niederer

Turning to the Birds is an artistic research experiment that builds on both science fiction and machine learning's capacity to transport us into possible climate futures, imagined in collaboration with machines. We used cli-fi (climate science fiction) novels to train GPT-2, a machine learning algorithm. We prompted the model to write new texts based on the training data in the format of a diary from the not-so-distant future. These diary entries, or "postcards from the post-Anthropocene," were recorded as audio stories with accompanying illustrations, and featured in a series of forest listening workshops as part of the exhibition *Critical Zones* curated by Bruno Latour and Peter Weibel at ZKM Center for Art and Media Karlsruhe. In this article, we introduce our machine co-authored climate fiction stories and ask whether, and how, the method of walking with these stories transforms them into a tool for noticing nature with many senses.

EXTRACTION, TEMPORALITY, AND THE DIGITAL: THREE LAYERS OF SIMON DENNY'S "MINE"

Jaxon Waterhouse and Chantelle Mitchell

Simon Denny's "Mine" (2019-2020), an installation at the Museum of Old and New Art, is a resonant exhibition reflecting our complicated relationships with extraction, data, and time. Readily appropriating imagery and materials from the mining sector, and utilising technology, tracking, and augmented reality, Denny weaves narratives of replication, possession, and manufacture across physical and digital landscapes. Through interventions into Mona's O — a digital interface that provides information whilst tracking viewing habits and experiences — the artist positions the viewers as complicit in the extractive process, and through augmented reality and digital infrastructures as the extracted material themselves. In this essay, Waterhouse and Mitchell analyse how the real-time capture and passage of information as represented in "Mine" destabilises experiences of the quotidian. Time is troubled by the many interrelated components of this exhibition, distended as it stretches across physical sites and grows nebulous within the numerous virtual locations accessed through the O. As the mass of data grows, viewers become keenly aware of thriving industry, accelerated extinction rates, and the encroachment of an all-too-real end.

HEALING THE INTERNET: EXPOSING COLONIAL HISTORIES, CARING FOR ALTERNATIVE FUTURES IN TABITA REZAIRE'S *DEEP DOWN TIDAL.*.

Rosa Wevers

This article explores how *Deep Down Tidal* by Tabita Rezaire opens up a critical inquiry of the history of the internet while enacting a politics of care for the future. Building on recent scholarship on the reparative capacities of art, I analyse Rezaire's video piece as an affective work of care that calls attention to the destructive elements of the internet and its violent histories and politics, while suggesting embodied practices of healing as a way to work through this history and act otherwise. Through a visual analysis of *Deep Down Tidal*, I argue that this video essay deconstructs the binary opposition between nature and technology by drawing attention to the role of water in digital communication infrastructures. While the internet is dominantly understood to be 'up in the air,' *Deep Down Tidal* traces the physical location of the internet at the bottom of the Ocean. As the work disturbingly exposes, the fibre-optic cables that transmit data streams to enable internet connection follow the routes of Transatlantic colonial shipping routes. By making these invisible physical conditions of the internet visible, *Deep Down Tidal* reveals how histories of colonialism and the exploitation of the Earth continue to haunt modern technologies today. As I will argue in this text, Rezaire's video work forms an example of the ways in which art can mobilise forms of care, and shape strategies for transformation in a time that is wounded by electronic colonialism and technology-driven climate change.

colophon

contributors
Sander Breure
Nicole De Brabandere
Witte van Hulzen
Jean Katambayi
Anabelle Lacroix
Shintaro Miyazaki
Sabine Niederer
Natalia Sánchez-Querubín
Evelyn Wan
Jaxon Waterhouse
Chantelle Mitchell

Volume 43, 2022, no. 2/3
ISBN: 978-90-831657-3-8

Kunstlicht is an academic journal for visual art, visual culture, and architecture. The journal is affiliated with the Art and Culture department of the Vrije Universiteit Amsterdam, but operates from an independent foundation. Since the founding of *Kunstlicht* in 1980, the journal has been a platform for academic publications by art, architectural, and cultural historians. *Kunstlicht* is a publication of Stichting Kunstlicht. *Kunstlicht* is published four times a year (three academic issues, of which one is a double issue). Each issue deals with a specific and interdisciplinary theme. The editorial board does not necessarily hold the same opinions as those professed in the articles published.

contact
Kunstlicht, Vrije Universiteit,
Faculteit der Letteren
De Boelelaan 1105
1081 HV Amsterdam
www.tijdschriftkunstlicht.nl
info@tijdschriftkunstlicht.nl

bank
IBAN: NL 08 INGB 0005 859 646
t.n.v. Stichting Kunstlicht te
Amsterdam
BIC: INGB NL 2A
KvK Amsterdam: 41207238

graphic design
studio Corine van der Wal

font
Garvis pro & Meriva

printer
EVM Print, Brussels, Belgium
Cover RISO printed by
RISOWISO, Arnhem

editor-in-chief
Joyce Poot
Anna Sejbæk Torp-Pedersen

editorial board
Fabienne Chiang, Olivera
Bucalović, Sofia Ehrich, Aline
Hernández, Cleo Foole, Danica
Pinteric, Alexa Simonics, Esther
Scholtes, Maja Klaassens, Lisa
Marie Sneijder, Agnieszka
Wodzińska, and Manuela
Zammit, Kyndal Jackson

treasurer
Fabienne Chiang

foundation board
Angela Bartholomew, Jos
ten Berge (chair), Kathleen
Nieuwenhuisen, and Robert
Verhoogt

subscriptions
Year: € 30,00
Trial: € 22,50
Vrije Universiteit: €22,50
Friends of *Kunstlicht*
subscription: donation
Institutions: €50,00

Subscriptions are automatically renewed for a year unless the subscription is terminated by the subscriber before December 1 by e-mail or mail. For subscriptions or cancellations contact us at
redactie@tijdschriftkunstlicht.nl

advertisements
An advertisement in *Kunstlicht* allows you to reach a varied group of art lovers and professionals. Among our subscribers you will find museums, libraries, and academic institutions in the Netherlands and abroad. *Kunstlicht* is for sale at selected bookstores in the Netherlands. Besides printed ads, we offer the possibility of inserts and online ads. Please contact us at
redactie@tijdschriftkunstlicht.nl

bookstores
Buchhandlung Walther König
Stedelijk Museum Amsterdam
Museumplein 10
1071 DJ Amsterdam
tel. 020-573 29 11

WALTER books
Looierstraat 43
6811 AV Arnhem
tel. 026-3828304

Stroom Den Haag
Hogewal 1-9
2513 HA Den Haag
tel. 070-3658985

De Drukkerij
Markt 51
4331 LK Middelburg
tel. 0118-886 886

Billytown
Helena van Doeverenplantsoen 3
2512 ZB Den Haag
tel. 31 06-384 220 95

MELLY
Witte de Withstraat 50
3012 BR Rotterdam
tel. 010-411 0144

De Appel
Schipluidenlaan 12
1062 HE Amsterdam
tel. 020-625 5651

Jewish Museum
Nieuwe Amstelstraat 1
1011 PL Amsterdam
tel. 020 531 0310

Pro QM Thematische
Buchhandlung
Almstadtstraße 48-50
10119 Berlin Germany
tel. 0049 30 24728520

cover image
Rafaël Rozendaal,
Accumulation, 2022.
RISO by RisoWiso, Arnhem.