

INTRODUCTION
ALGORHYTHMS: LIVING IN AND OUT OF SYNC
WITH TECHNOLOGY

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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 megastucture 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.

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

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

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Finn, *What Algorithms Want*, 17.

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

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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 visualizations 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 ICG message notifications, the MIDI-ringing 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

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 aesthetics 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 mediate 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.

⁷ See for instance a detailed analysis in Justa Parkka, *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, algorhythms 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, "Algorhythms: A Diffractive Approach for Understanding Computation," in *The Routledge Companion to Media Studies and Digital Humanities*, ed. Jeremy Sayers (New York, London: Routledge, 2018), 244.

⁹ Miyazaki, "Algorhythms," 244.

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

¹¹ Miyazaki, "Algorhythms," 244.

¹² In earlier works, I have analyzed these legacies as part of what I term the "neocolonics 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 Vásquez, *Vistas of Modernity: Decolonial Aesthetics and the End of the Contemporary* (Amsterdam: Mondrian 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-Quernubín 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 Finimco in France, and a special manifesto by Shintaro Miyazaki, reflecting on where the concepts of algorithm/algorithms and his experimentalations 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 Does) 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-Quernubín 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, dislocations, 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 Kuntzman 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, dangling 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.

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

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Anna Lownhaupt 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.

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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.

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

¹⁸

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

¹⁹

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 progress 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.

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

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"*Freedom of Sleep: A Practice of Rhythming Otherwise*" focuses on an interdisciplinary exhibition that proposes the desynchronization of the body,

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

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-Algorithmics 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 algorithms and algorithmics as a dance of resistance to the current technological regime. His concept of algorithmics 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 algorithmics, let us dance together and forge alternative futures.

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