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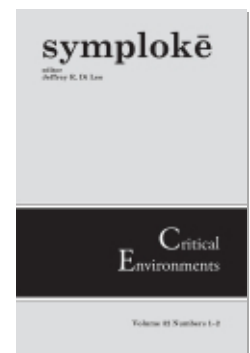
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# TECHNICAL RATIONALITY AND THE ENVIRONMENTAL TURN: THE CASE OF HOLLY HERNDON'S *OIKOS*

MICHAEL F. MILLER

I think Holly Herndon's home is bugged.

Directed by the Amsterdam-based design studio Metahaven, the music video for Herndon's 2015 track "HOME" begins as a shadowy figure standing behind a digital camera presses the record button and scurries out of frame.<sup>1</sup> Herndon, dressed in black, is positioned between the camera's line of sight and a gray backdrop, doubly obscured by the apparatus and its anonymous operator. A single trace of red ponytailed hair resting on her left shoulder draws our attention away from the technical assemblage. Herndon starts to sing as the red "record" light flashes briefly. Right away, the word HOME appears in bright blocky letters. Her face still hidden by the apparatus, Herndon sings to an anonymous second person addressee: "I can you feel you in my room / Why was I assigned to you? / I feel like I'm home, on my own." As she reaches the last line of the introduction, the triply overlaid text disappears and Herndon's searing blue eyes and pale face peek out from behind the camera. Whom or what is the object of Herndon's address? With whom or what is she sharing her domestic space? And why would she, a contemporary experimental electronic musician, be assigned to someone or something?

The pulsing bass drops to signal the end of the intro and a cascade of icons immediately floods the screen, creating an opaque layer of visual noise separating Herndon from her observers. Upon further inspection of the visual tokens, we learn that they come from PowerPoint slides belonging to the National Security Agency's PRISM program, revealed most famously by Edward Snowden in 2013. The NSA and other Western states, we now know, are not only surveilling your home and Herndon's; they have been "map[ping] the entire internet—Any device, anywhere, all the time" (NTOC 2024, n.p.),<sup>2</sup> as the NSA puts it, through a Stack-enabled form of omniscient "cartographic and optical authority" (Bratton 2015, 441).<sup>3</sup> The "you" to whom Herndon has been assigned is not a person but a technical assemblage. This assemblage's—or The Stack's—techniques of total data capture herald a broader onto-epistemological shift in the space and function of

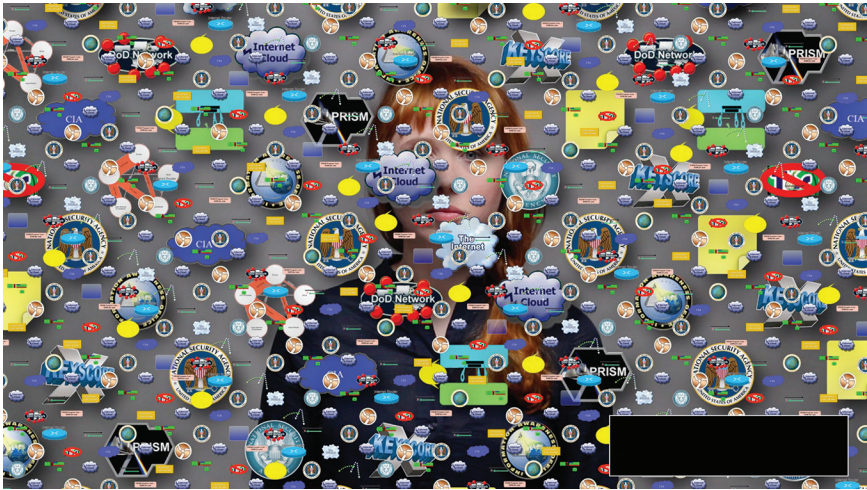


Fig. 1. Holly Herndon, *Home*, 2014, video directed and designed by Metahaven, color, sound, 6 min., still. Courtesy the artist, Metahaven, RVNG Intl. and 4AD.

computational reason that is fully realized when algorithms approach “the world itself *as* information” (8).

The word “home” is a rough translation from the German *heimat*, and it is conceptually related to the Greek *oikos*, which provides the etymological root for the prefix *eco-*. In Herndon’s artistic practice, however, the *eco-* or *oikos* designates both a space of totalized and totalizing computational capture and a site of aesthetic, political, and technological experimentation. Herndon’s symbolic relation to these capture devices varies throughout the video. Sometimes she speaks directly into the camera, like a hostage recording a forced confession. At other moments a second camera appears behind the first, observing the observer and creating a *mise en abyme* of self-referential observation. This impression is solidified later on when Herndon holds up her cell phone to the camera, recording the recorder who is also being recorded. Herndon’s moments of direct address to the camera can be understood as acts of *sousveillance*, which means she consciously and willingly displays herself—or her data—to her technical observers. In this sense, her artistic practice seeks out critical possibilities and potential exploits from *within* the machine. In “HOME,” and on the album on which it appears (*Platform* [2015]), Herndon dissolves the onto-epistemological boundaries between “surroundings and surrounded,” organic and inorganic embodiment, inside and outside by revealing and experimenting with the technical and aesthetic affordances of computational media (Sprenger 2023, 406). For Herndon and for many of the theorists I discuss below, a critical account of technics has to begin from *inside* the machine. What



Fig. 2. Holly Herndon, *Home*, 2014, video directed and designed by Metahaven, color, sound, 6 min., still. Courtesy the artist, Metahaven, RVNG Intl. and 4AD.

Herndon's "HOME" wants to show us, I think, is that the *oikos* has become a technoecological platform of cyberneticized relations.

While Herndon's work is critical of corporate and governmental misuse of data capture technologies (and on her most recent album *Proto* (2019) she experiments with the sonic and compositional possibilities of AI), her artistic practice is anything but technophobic.<sup>4</sup> Put simply, Herndon articulates a theory of technology that shares much in common with the emerging body of so-called left "accelerationist" theory and cultural production. Herndon's work and "accelerationist" thought both begin from the premise that "information technologies, whilst certainly tools in capitalist production, have the potential to act as springboards for non-capitalist modes of production if utilized in an informed and sophisticated way" (Džuverović 2016, 96).<sup>5</sup> The famous accelerationist maxim, of course, claims that the only way out of capitalism is through. This is why accelerationists believe that "the Left must take advantage of every technological and scientific advance made possible by capitalist society" in order to accelerate and intensify capitalism's contradictions (Williams and Srnicek 2014, 356). If "platforms are the infrastructures of global society," Williams and Srnicek continue, then they must "be reprogrammed toward post-capitalist ends" (357).<sup>6</sup>

I've begun this essay by touching briefly on Herndon's work for three important reasons. The first is that Herndon's practice advances a creative-critical account of the relations between art, politics, and technology, an account whose strength is that it refuses the familiar (and increasingly common) humanist lament over the waning of so-called human creativity

or existential impoverishment by artificially intelligent systems. Herndon's work—and its avoidance of neo-luddite nostalgia—scans here with recent observations Claudia Aradau and Mercedes Bunz have made about AI's cultural reception. For them, focusing too much attention on the “public epistemology of fear” surrounding AI and computational media most likely “deter[s] any engagement in the present” (Aradau and Bunz 2022, 10). Herndon's work, I would argue, represents one form of productive critical engagement with computational media. The second reason is that her work raises important onto-epistemological questions regarding the becoming-technological of the *oikos* or home and the related problem of the becoming-ecological of rationality. And the third is that the explicit influence of accelerationist thought on Herndon's creative-critical practice invites us to put her work in conversation with other theorists and philosophers of technology who also share degrees of accelerationist sympathy. Framing Herndon's work next to accelerationist thought also highlights the contested status of reason or rationality in cultural-critical discourses of technology. Unlike the dominant critique of technological rationality that emerged during the New Left '60s (contemporary versions of which I discuss below), accelerationism calls for “a Promethean politics of maximal mastery over society and its environment,” and its proponents argue that this mastery can only develop out of new forms of “cunning rationality” (Williams and Srnicek 2014, 360–61). In an age characterized by total crisis and slow-motion planetary catastrophe, perhaps more advanced forms of technical reason—not less—will provide the pharmacological resources to help us avoid, or merely help us believe we can avoid, the unavoidable.

In what follows, I crossmap Herndon's accelerationist practice and her aestheticized vision of the data-fied *oikos* alongside recent work in media philosophy in order to address the most common theoretical impasses in recent critiques of artificial intelligence and contemporary computational systems. By focusing particular attention on the main arguments Luciana Parisi has made over the last few years in her attempt to recuperate a “metaphysics from *within* the [technical] instrument, from *within* the medium, from *within* the function” (Parisi and Morgan, 186), I hope to provide better conceptual purchase on exactly why and how the classic Marcusean critique of technological instrumentality struggles to account for an always-already ecologized rationality of artificial intelligence and machine learning.<sup>7</sup> In this regard, Parisi's work is indispensable because it explains how the logical architecture underpinning Critical Theory's definition of technological rationality cannot account for the “bio-physical” and temporal “indeterminacy” of matter or environmental contingency that attends the age of planetary-wide computation (2017, 80).

Parisi's recent work argues that new forms of “computational reason” are needed to process the shift to logical abduction in technical systems, which

is different from deduction and induction (2017, 78). Parisi's accelerationist metaphysics of the machine wants to open up a space within "philosophy after computation" into which a messianic "outside" or Event—or what she calls the "indeterminate indeterminacy" of nature—ould enter and overturn, once and for all, "the servo-mechanic model of technology" (2017, 84; Parisi 2019a, 28).<sup>8</sup> With the so-called self-determining subject constituted by, and caught in between, algorithmic systems of "machine-to-machine communication," Parisi's project is least persuasive when it attempts to recover the very concept of the subject and its capacity for reason from its artificially intelligent confines (2019a, 29). While her work places an "affirmative trust in full automation that insists on the re-purposing or re-aiming of the means of enslavement so as to liberate the self-determination of the subject and re-use technology for human emancipation," it over relies on such humanist conceits as subjectivity that are, to my mind, theoretically and politically untenable (31). I conclude by arguing that a pharmacological account of contemporary technics (which is conspicuously absent from most critical accounts of technology and AI) just might help us better understand the full range of effects wrought by the total automation of reason.<sup>9</sup>

## One

Born in 1980 in Tennessee but residing currently in Germany, Herndon began her career playing DJ sets in Berlin before earning a PhD from Stanford's Center for Computer Research in Music and Acoustics in 2019. As she has claimed many times in interviews, her projects are interested in dispelling cultural fears of computational media, and now AI, by humanizing the computer. Herndon's music is both experimental and poppy, her voice—natural and electronically modulated—binds the human with the computer. Her second album, *Platform*, acts as a *critical* platform that blends together the fleshy human voice and the electric sounds of computational glitch to critique the increasing incursion of computation and surveillance into all facets of daily, domestic life.<sup>10</sup> Her third album, *Proto*, interrogates the ontic boundary between artist and machine. For this project, Herndon and her partner-collaborator Mat Dryhurst trained a neural net for the album. Herndon's own voice acted as the main training data for Spawn, the name they gave to the AI, and Spawn has co-composer credit on a few songs on the album. Herndon's recent experiments with machine learning and her AI twin, "Holly +," deserve a longer discussion which I am not able to provide here. For now, though, I want to say a few more words about "HOME."

The chorus to "HOME" reads as follows: "I know that you will be / Still around / I don't know which me to be / I know that you know me



Fig. 3. Holly Herndon, *Home*, 2014, video directed and designed by Metahaven, color, sound, 6 min., still. Courtesy the artist, Metahaven, RVNG Intl. and 4AD.

better than I know me / Still around” (Herndon 2014, n.p.). Herndon is surrounded by someone or something that is “around” her. The PRISM icons we see throughout the video make it clear that Herndon’s addressee, the personalized “you,” is of course anything but. Framed as a sousveillance confession of pluralized subjective instability, her refusal to make an ontological claim is captured, computed, and controlled by the technologies which both surround her and reduce the expressive subject to little more than the traces of past experience-as-data. For Florian Sprenger, “the dyad between surrounding and surrounded is the history of ecological thinking” (2023, 407). Surrounding/surrounded and inside/outside—for Sprenger these are the most historically enduring forms of topological and spatial unity that have been attached to conceptions of ecology and environment.

In Herndon’s “HOME,” the *oikos* or home—the surrounded—has become thoroughly surrounded and penetrated by apparatuses of data capture and computation. In other words, her work suggests that ubiquitous computation renders the inside/outside distinction inoperable. And recent work in media philosophy would seem to confirm this technoecological condition of computation. Sprenger argues that the constitutive distinction between inside and outside, or, as he puts it, the difference between “surrounding and surrounded,” is the repressed epistemological other of ecological thought (2023, 407). Sprenger’s emphasis on the “surrounding/surrounded” dyad reveals the “epistemological peculiarity of environmental relations.” What has made the relation between organisms and their environments so “peculiar” now is the fact that environmental “surroundings can no longer

be considered as natural." These surroundings are no longer "natural," Sprenger observes, because they do not stand in "opposition to nature or culture" (407). Instead, "surroundings" must be understood "as necessarily bound to that which they surround and [are] consequently cocreated by us" (408). This notion of bounded and co-constitutive surrounded/surrounding dyads—or non- or de-natural ecologies—is useful because it builds on the definition of the ecology concept Erich Hörl provides in his editor's introduction to *General Ecology: The New Ecological Paradigm* (2017). Hörl's introduction to the collection traces how the ecology concept has referred historically to the outside of culture and technics. However, as Hörl and the other contributors to the volume demonstrate, technological developments in planetary-wide computation and media-theoretical attempts to rethink nature beyond teleology have radically upset the distinction between nature and technics. Once the ecology concept is no longer "bound . . . to nature," it becomes "pluralized and disseminated" into an infinite number of "non-natural ecologies" (Hörl 2017, 2). Hörl's conceptual intervention shows how "non-natural ecologies" reveal the inherent technicity of nature itself, signaling an onto-epistemological reassessment of the plurality of media-theoretical relations.<sup>11</sup> Hörl's "non-natural" account of the ecology concept points toward "a relationality more fundamental than any substance," a relationality that allows for a conceptual plasticity found within the prefix itself (Woods 2022, 161). When "any phenomenon can be framed in ecological terms," attaching the prefix *eco-* to any term implies "a constitutively . . . and postnatural" relation between the modifier and its noun (161).

Herndon's work is useful here because it stages for us a theoretical allegory in which the postnatural *oikos* converges with *technē*. With the two terms standing no longer in opposition to one another, Herndon's "HOME" asks how the technological condition of ecology "forces and drives a radically relational onto-epistemological renewal" of its operative terms and concepts (Hörl 2017, 3). In its radical reassessment of relationality, Herndon's home models a new form of ecological rationality. Opposed to overly "restricted" forms of rationality, ecological rationality draws on the power of computation in order "to take the real's excessive wealth of relations into account" (7). The "distributed systems for capturing data" that are simultaneously inside and outside of Herndon's home are also "transforming our surroundings into spaces that are calculated and calculating at the same time" (Sprenger 2023, 409).

In a similar register, Jennifer Gabrys has argued that

the *becoming environmental of computation* signals that environments are not fixed backdrops for the implementation of sensor devices, but rather are involved in processings of becoming along with these technologies. Environment is not the ground or fundamental condition against which

sensor technologies form, but rather develops with and through sensor technologies as they take hold. (2016, 9)

When Herndon looks into the camera and sings that she “doesn’t know which me to be,” the addressee of her confession is not some anonymous federal functionary but rather active technological processes of environmental becomings, processes which “we are building both deliberately and unwittingly and [are] in turn building us in [their] own image” (Bratton 2015, 4–5). The idea that technologies “build us in their own image” scans with other accounts of the co-constitution of man, technics, and environment laid out most forcefully by Bernard Stiegler in his *Technics and Time* trilogy (1994–2001). More recently, Orit Halpern, Patrick Jagoda, Jeffrey West Kirkwood, and Leif Weatherby have argued that “Data extends beyond description, creating the world it would describe” (2022, 203). For all of these thinkers, rendering the world into data through automated systems simultaneously creates and makes it available to technological processing.

## *Two*

In a 2023 op-ed published in *The Guardian* titled “AI Machines Aren’t Hallucinating. But Their Makers Are,” Naomi Klein lists four popular “hallucinations” that she believes help “rationalize generative AI’s undeniable perils”: (1) AI will solve the climate crisis; (2) AI will deliver wise governance; (3) tech giants can be trusted not to break the world; and (4) AI will liberate us from drudgery (2023, n.p.). Klein’s argument represents a classic instance of paranoid reading: for her, any stated affordance of generative AI or machine learning is nothing other an ideological mystification giving cover to the real-world harms caused by artificially intelligent technical systems. Why bother critiquing the evils of AI, she seems to ask, when we know that capitalism is the cause? I’ll say more shortly about what I see as the limitations of this line of critique in relation to AI and philosophy of computation. But in the meantime, I want to draw attention to Klein’s insistence that these inflationary claims about AI are implicitly irrational because they do not seem to fulfill “human needs and protecting the planetary systems that support all life” (n.p.).

I am interested in Klein’s op-ed not because I want to prove or disprove any of her claims regarding the relative rationality or irrationality of AI and its developers’ intentions, but because I think it signals a lingering commitment in both popular culture and the theoretical humanities to the critique of technological rationality. Marcuse’s famous argument is that enfolded technological innovations into society (the means) in order to maximize efficiency (the ends) is not in itself a rational act. It is not inherently rational

because, for him, “the liberating force of technology – the instrumentalization of things – turns into a fetter of liberation; the instrumentalization of man” (Marcuse 2002, 163). His most enduring thesis is that “there is an intrinsic a priori connection between scientific-technical rationality and domination” (Feenberg 1995, 30), a connection so fatal because “the domination of nature has remained linked to the domination of man” (Marcuse 2002, 170). Technological rationality links these two forms of control because it “protects rather cancels the legitimacy of domination,” leading inevitably to “a rationally totalitarian society” (Marcuse 2002, 162) and the total despoliation of nature. But do Marcuse’s arguments still hold up today? Can his arguments accommodate accelerationism’s embrace of “sociotechnical hegemony” (Williams and Srnicek 2014, 357)?

Niklas Luhmann’s critique of rationality is important here, as he would want to remind us that Marcuse’s operative distinction simply isn’t one if we follow systems-theoretical precepts.<sup>12</sup> “The distinction between reasonable and unreasonable (rational and irrational) only requires us to observe who uses it and for what purposes” (Luhmann 1998, 36), he writes. For him, the critique of technological rationality (and, more provocatively, Marxism in general as Gunn [1992] argues) is stuck in a form of first-order observation, unable to reflect upon its own constitutive distinctions and what those distinctions *do* in terms of form generation and systemic function. When viewed by a second-order observer, the difference between rational and irrational is seen to constitute a unity, not a distinction. Luhmann describes the problem this way:

If we give up the assumption of parallel views of a unified world, then we must ask whether someone can act rationally if he is observed. There would have to be limitations on the reactions of the observer that could take into consideration the rationally ambitious observer of the first order. In view of this problem, rationality becomes dependent on institutional or negotiable presumptions, whose self-rationality (meta-rationality) can hardly be found in the rationality it enables. (1998, 28)

For Luhmann, the concept of rationality – as the unity of a distinction when viewed by another observer or system – cannot account for its operative distinction (rational/irrational) without falling into logical paradox (only the side marked “rational” decides what is “irrational”). The only way to resolve the paradox is through other distinctions made by other observers. Here, we might want to reflect on the meaning and function of the rational/irrational distinction in Marcuse and other Critical Theorists. From whence do they make these distinctions? From whence do they make such bold claims about society if not from inside it? And according to which criteria? What does this distinction *do*? While Marcuse and

others have argued that technical rationality adheres to a logic of closure which creates “concrete logics of instrumental reason,” the closure it produces also, and paradoxically, might “generate spaces of critical-political openness” (Overwijk 2020, 2), spaces that may only be observable by a second-order observer.

Nevertheless, variations of Klein’s first-order critique permeate the emerging field of critical AI studies. Here, calls to demystify technology’s sociocultural conditions of production are pitted against more sustained lines of theoretical inquiry. This nascent discourse focuses on how cultural bias and discrimination are reproduced on the level of code, and scholars writing on these topics tend to work backward by drawing causal connections between present-day effects or harms (created by technology) and their origins in situated material, historical, and cultural contexts. Indeed, recent conversations around LLMs also hinge on the presumed causal relation between technology and its effects on society. In Emily Bender’s and Timnit Gebru’s et al.’s essay “On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?” the authors conclude by “advocating for research that centers the people who stand to be adversely affected by the resulting technology” (2021, 619). “People who stand to be affected by the resulting technology” – from whence in the future can one make this claim? With what certainty? And how can one know that such strategies of “harm reduction” are the correctly calculated means? And what happens when AI and other machine learning systems do not adhere to strict inductive/deductive principles of reasoning and causality? Let me say now before I create the wrong impression that I think this work is necessary and indispensable. But its investment in demystification adopts a limited, first-order perspective on society. It is only through a lack of reflection upon the distinctions one makes via observation that one can believe that exposing technology’s social and historical embeddedness will, or can, lead to more inclusive cultural policies and to a more just political future. In other words, the recursive structure of computation makes such linearly-causal pronouncements untenable.

In their introduction to the inaugural issue of *Critical AI*, the editors claim that excessive philosophical focus on AI’s onto-epistemological effects creates a blindness to “the social and infrastructural requirements of this new structural condition, marginalizes political action,” and ignores how AI technologies perpetuate “real-world harms” (Bode and Goodlad 2023, n.p.).<sup>13</sup> What critical AI studies needs to concern itself with, according to the editors, is unmasking the ways in which AI and machine learning “instrumentaliz[e] [the treatment of human workers, nonhuman entities, and the planet itself” (n.p.). The editors’ theoretical intervention calls for “a more decidedly ‘flat’ ontology that challenges human-centered practices and states of being” (n.p.). For the editors, flat ontology provides the best way to

reverse the planetary-wide entropy and real-world harms unleashed by AI, and it avoids the problem of attributing too much agency and power to data. But their critique of instrumentality does not avoid the first-order pitfalls described above. Their commitment to political critique and flat ontology is also incoherent because it risks reproducing a faulty logic of political, ecological, and ontological purity while erasing necessary and constitutive differences. As Halpern, Jagoda, Kirkwood, and Weatherby put it, “While well intentioned, discourses of data extractionism” that focus exclusively on its political effects “affirm rather critique data’s status as sovereign and representative of the world” (2022, 200).

Part of my argument here is that Critical Theory’s account of instrumentality is unable or unwilling to consider technics from a pharmacological – let alone accelerationist – point of view.<sup>14</sup> Indeed, Marcuse and others place too much faith in a human subject who, it is presumed, possesses the noetic capacity to engage in rational ends-means calculation. If we can identify the ends (more equitable or representative data sets, for example), then we can tweak the means (alter the training data through more socially conscious practices, and so on). In these formulations there is a direct causal and representative line running from technics to “politics.” But if it is true that “data extend beyond description, creating the world it would describe,” then this “outside” position of critique becomes impossible (Halpern et al. 2022, 203). The particularly phantasmatic form of this kind of political critique imagines a conceptual outside from whence it could describe causal and representative relations. What it forgets, though, is that there is no unmediated, onto-epistemological outside from which these observations can be made. Recent work in the philosophy of computation has also pointed out the insufficiency of this position by focusing on two crucial observations: that (1) the noetic capacity for rational calculation is not limited to carbon-based life forms, and (2) that contemporary machine learning systems no longer operate according to deductive/inductive logic.

### *Three*

Luciana Parisi, Leif Weatherby, and Brian Justie have explored how complex AI systems do not process data inputs (particulars) according to pre-established rules. Instead, AI and machine learning systems process new data according to Peircian abduction, which is a form of logical pragmatism. Abduction is a form of purely hypothetical, and hypothetically recursive, reason. It “consists in creating new ‘explanatory’ hypotheses. It is a process of inferring facts, laws, and hypotheses that can speculatively explain some unknown phenomena,” Parisi tells us (2019b, 108). Abduction defines reasoning not simply in terms of evaluation, but also as the

formation of new explanatory hypotheses (108). Weatherby and Justice put it this way: abductive reasoning means that “if there were a general law that included these particular examples, *then* this particular item would fall under it” (2022, 389). What abduction doesn’t do is “apply a general law to phenomena, or derive a tentative law from phenomena” (389). Instead, it represents a “shift from rule-obeying truths to an algorithmic pragmatism, using data to search for and predict truth” (Parisi 2019b, 94). If so-called artificial intelligence operates abductively, then automated inputs and outputs are no longer strictly limited to ends/means calculation and prediction. For Williams and Srnicek’s accelerationist project, abduction is a valuable form of logical “experimentation that seeks the best means to act in a complex world” because it allows for improvisation and the incursion of contingency (2014, 361).

In order to grasp the full range of effects brought about by this shift toward abduction and “automated reason,” as Parisi calls it, I want to sketch out some of the main arguments she has made over the last few years in relation to AI and rationality. Like Herndon’s artistic practice, Parisi’s philosophical project is devoted to recuperating an immanent metaphysics of the machine from *within* its own structures of technical logic. Her arguments begin from the observation that “technical systems today constitute a built environment characterized by the exponential growth of non-conscious cognition devices (Parisi 2019b, 91). For her, philosophy of computation needs to open up a logical topos within intelligent systems that could account for what she calls the “alienness of automated reason” (Parisi 2017, 79). She describes her project this way in a recent interview:

Philosophy after computation . . . can only start as a quest for the outside, namely what has always already been expelled from the decisional structure of philosophy . . . We need a metaphysics of the instrument. But how can one think of cybernetics in relation to something that is instead a function that we do not know yet, in order to open up the function? Rather than saying there is a potentiality in cybernetics, the potential condition of cybernetics . . . there must be a way we can find a metaphysics from within the instrument, from within the medium, from within the function. (Parisi and Morgan 2021, 186)

Parisi wants to extract a metaphysics of the machine from within its own logical structures in order to open the possibility for “some contingency to come from outside and save us” (2021, 200). The messianic arrival of this automated and exteriorized reason would be generated speculatively by the biophysical indeterminacy of nature, or the total environmental contingency of technics. Parisi compares this “outside” to Gregory Chaitin’s “uncomputable,” and she hopes that its sheer “inhumanity” would

short-circuit the “servo-mechanic model” of technological instrumentalism (2019a, 28). Due to her formative intellectual experiences as a founding member of the Cybernetic Culture Research Unit (CCRU) at Warwick University in the 1990s, Parisi’s work can be seen as an extension of the CCRU’s accelerationist mission.

With Parisi’s framing in mind, I want to return to a question posed above: How do computational models account for the biophysical indeterminacy or contingency of environmental factors? Parisi’s answer is that the proliferation of sensing technologies into the environment creates “ecological forms of rationality” which “feed off its media-technological condition” (2017, 75). For Parisi, the becoming-ecological of rationality means that literal and data-fied environments become uncountable quantities of search spaces (91). In other words, the environment ceases to act as a thing “out there” and becomes instead the addressee or focus of automated epistemological inquiry and/as data-driven search. “With the instrumentalization of logic that belongs to computational reasoning,” she writes, “ends no longer match the means of programming” because automated decision making algorithms, functioning in a perpetual present, render the ends unknowable in advance (2019a, 32). Data inputs then “do not have to fit categories, but are instead redefinable in the manner in which algorithms generate possible rules, causes, and facts where they had previously been missing” (2019b, 94). In her more recent work, Parisi has turned to Hayles’s conception of “non-conscious cognition” as a way to frame her discussion of automated reason in nonhuman systems. In Parisi’s account, reason is equal to calculation, and this equivalence enables her to theorize the world as calculable and subject to information processing by ecological rationality, or alien reason. For her, AI systems bring about “the automation of automation: the automated generation of new algorithmic rules based on the granular analysis and multimodal logical synthesis of increasing volumes of data” (2019b, 90).

The biophysical indeterminacy of nature, or “the contingency of environmental factors” has to be accounted for by computational modeling (Parisi 2017, 80). “It is indeterminacy and not the already measured value of physical, biological, chemical processing of data that explains the tendency of nature to become more than what it is,” Parisi writes. For her, “this form of computation aims to explain an eco-logical order of nature” (83), so that “nature now coincides with the primacy and the immanent reality of the accident—with indeterminate indeterminacy” (84). Her argument is that familiar models of programming, which operate according to varying levels of induction and deduction, are simply unable to account for the biophysical materiality of “indeterminate indeterminacy.”<sup>15</sup> This is why abduction is so important for AI and algorithmic systems. Abduction disrupts the linear causality of programming in which outputs or effects are causal outcomes

of inputs and preestablished rules. With abductive reasoning there are no preestablished rules. Every input is assessed pragmatically to test whether it *might* explain or establish rules – in the past – according to which prior operations could function. In effect, abduction renders the future radically contingent, canceling out the very graspability of knowable ends.

Yet Parisi's "unshakeable logical mainland," to borrow a phrase from Peter Sloterdijk, is unsupportable given its implications for her project. Even in her system, the hope or belief in a messianic uncertainty/indeterminate indeterminacy that would arrive from the "great outdoors" is not feasible because it still falls within her proscribed technical logic. Her commitment to rationality-as-messianic logic is itself irrational, mad as Stiegler puts it in his gloss on Descartes (2018, 106). And while it may be true that artificial intelligence leads to the grammatization of intelligence and to the possibility of planetary-wide proletarianization, our critical accounts of technological complexity cannot stop at the level of pure description. Parisi's cognitivist account of computation – like the dominant position of "critical AI" studies – seems to willfully forget the pharmacological dimension of technics. Stiegler's view would hold that the cognitivist paradigm of AI "imposes absolute non-knowledge (the age of post-truth): and it operates only through the dissolution of all knowledge into and by calculation, and in so doing, it accomplishes nihilism – that is, the devaluation of all values" (140). Following Stiegler's reading of Marx, I think there can be productive possibilities in technical alienation. "If we follow the hypotheses of the *Grundrisse*, but do so from the perspective of contemporary realities," Stiegler writes, "the question is not the power of the negative that the proletariat would somehow embody, but the power of the positive that the pharmakon would contain as the possibility of a reversal opening up the formation of a communist economy that would amount to a new therapeutics" (150). Revisiting the pharmacological dimension of technics in this way opens up negentropic possibilities to dis-automatize the automation of reason. In a radically uncertain future, it may be the case that a pharmacological embrace of acceleration, excess, and entropy provide paradoxically the neganthropic opportunities to create new distinctions and forms of life.

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## Notes

1. To watch the video, see Herndon (2014).
2. For the full presentation, see NTOC (2024).
3. Bratton proposes: “The Stack as a way that we might map political geography, but also how we understand the technologies that are making that geography” (2015, 4). The idea that The Stack, or planetary-wide computational systems, possess generative onto-epistemological capacities is what I want to emphasize here.
4. For a recent profile of Herndon and her partner/collaborator Mat Dryhurst published in the *The New Yorker*, see Wiener (2023).
5. See Noys (2010), Williams (2013), and Williams and Srnicek (2014) for foundational accounts of “left” accelerationsim, and Shaviro (2015) and Raley and Samolsky (2023) for excellent overviews of accelerationism’s philosophical and political forebears. Williams, Herndon, Dryhurst (2016) discuss the influence of accelerationism on Herndon’s work and thought.
6. For Bratton, what’s at stake in such an undertaking “is more than a new way for states to operate or a new set of technologies requiring governance; rather, it is a scale of technology that comes to absorb functions of the state and the work of governance. . . . The Stack model . . . demands that we understand the designability of geography in relation to the designability of computation and to see the state (and other sovereign institutions) in relation to both at once” (2015, 7).
7. Generative AI/ML and the related idea of general AI has of late reignited scholarly interest in Marx’s notion of the general intellect. While the concept is outlined briefly in the *Grundrisse*’s “Fragment on Machines,” Marx’s idea received scant critical attention until the Italian post-operaismo tradition began discussing it at length in the 1960s. Most famously, Marx argues that “the general intellect” comprises both *savoir vivre* and *savoir faire*, and he argues that automation poses a threat to both. For Marx, “A process of alienation of skill and knowledge starts as soon as machinery appears in front and in place of labor,” and “as tools pass from the hands of the worker to the hands of the machine, the same process [of alienation] happens to the workers’ knowledge” (Pasquinelli 2019, 48). See Marx (1973, 706) for more on the “general intellect.”

8. Williams and Srnicek too believe that “the future must be cracked open once again, unfastening our horizons toward the universal possibilities of the Outside” (2014, 362).

9. My title refers loosely to Marcuse’s conception of technological or technical rationality, which I discuss below in more detail. But what I am most interested in exploring here are the theoretical effects that result from the ecologization of rationality-as-computation. For me, the “environmental turn” of my title refers to the broader interest in “ecological rationality” and/as environmental media (and media environments), a turn that is best characterized by a second-order cybernetic and media-philosophical decoupling of system and environment, ecology, techne, and nature. See Bao, Gaboury, and Morgan (2023) for more on this development.

10. Džuverović (2016) situates Herndon’s experiments with the heavily mediated female voice within a longer genealogy of avant-garde musicians that includes Diamanda Galás, Laurie Anderson, and Pauline Oliveiros, among other important figures. I would also want to include Meredith Monk in this genealogy.

11. Indeed, for Parisi “ecology here involves not an (associationist) interaction of parts, but the capacities of the environment, defined in terms of a multiplicity of interlayered milieus or localities, to become generative of emergent forms and patterns” (2017, 83).

12. In a characteristic swipe at Habermas and, by extension, Weber, Luhmann writes that in the context of rationality and value “the laziest of all compromises is to agree on ‘pluralism’” (1998, 27).

13. In the introduction cited here, and on the journal’s official social media accounts, the editors tend to label any sustained theoretical/philosophical inquiry into AI/ML as “unintentional criti-hype” (Bode and Goodlad n.p.). Such a reaction signals a deep-seated allergy to thinking theoretically about computational technologies and an inability or lack of imagination to escape first-order observation. At worst, it represents a form of reactionary anti-intellectualism. At the WTI, Ed Dallis-Comentale urged us to return to Heidegger on this matter. He helpfully pointed out to me that this refusal to think philosophically about technics might also signal a fear of what technology reveals to Being.

14. As Williams and Srnicek write, “technology should be accelerated precisely because it is needed in order to win social conflicts” (2014, 358).

15. Parisi explains it this way: “Deduction . . . accounts for the pre-existence of a conceptual architecture with which it is possible to pursue the understanding of the world through the perception of a thought as an image that corresponds to a fact, an object in the world. Whereas computational cognition sees deductive logic as a method that can prove that to think is to re-cognize or re-present a set of symbols wired in the machine, the shift to post-Turing methods of computation also coincides with a new method of reasoning. This is not based on given instructions but on learning from the interaction between objects, agents, and environments. Predictive patterning and not the logic of causality becomes the motor of complex dimensions of thinking within intelligent machines” (2019c, 84).

## References

- Aradau, Claudia, and Mercedes Bunz. "Dismantling the Apparatus of Oppression?: Left Critiques of AI." *Radical Philosophy* 2.12 (2022): 10–18.
- Bao, Weihong, Jacob Gaboury, and Daniel Morgan. "Introduction: Medium/Environment." *Critical Inquiry* 49.3 (Spring 2023): 301–13.
- Bender, Emily M., and Timnit Gebru, et al. "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?" *FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*. New York: Association for Computing Machinery. 610–23.
- Bode, Katherine, and Lauren M. E. Goodlad. "Data Worlds: An Introduction." *Critical AI* 1.1–2 (2023): <https://read.dukeupress.edu/critical-ai/article/doi/10.1215/2834703X-10734026/382463/Data-Worlds-An-Introduction>.
- Bratton, Benjamin. *The Stack: On Sovereignty and Software*. Cambridge, MA: The MIT P, 2015.
- Džuverović, Lina. "Holly Herndon: A Life Across Bits and Atoms." *Afterall: A Journal of Art, Context, and Enquiry* 41 (2016): 90–97.
- Feenberg, Andrew. *Alternative Modernity: The Technical Turn in Philosophy and Social Theory*. Berkeley: U of California P, 1995.
- Gabrys, Jennifer. *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet*. Minneapolis: U of Minnesota P, 2016.
- Gunn, Richard. "Against Historical Materialism: Marxism as First-Order Discourse." *Open Marxism*. Eds. Werner Bonefeld, Richard Gunn, and Kosmas Psychopedis. London: Pluto Press, 1992. 1–45.
- Halpern, Orit, et al. "Surplus Data: An Introduction." *Critical Inquiry* 48.2 (2022): 197–210.
- Herndon, Holly. "Holly Herndon—Home [Official Video]." YouTube Video. 6:14. 16 Sep. 2014. [https://www.youtube.com/watch?v=I\\_3mCDJ\\_iWc](https://www.youtube.com/watch?v=I_3mCDJ_iWc).
- Hörl, Erich. "Introduction to General Ecology: The Ecologization of Thinking." Trans. by Nils F. Schott. *General Ecology: The New Ecological Paradigm*. Bloomsbury: Bloomsbury Academic, 2017. 1–72.
- Klein, Naomi. "AI Machines Aren't 'Hallucinating,' But Their Makers Are." *The Guardian* (8 May 2023). [https://amp.theguardian.com/commentisfree/2023/may/08/ai-machines-hallucinating-naomi-klein?fbclid=IwAR1Jm5cuAU30pstMEsyK41fpqBYKkX74oCoiN63j\\_SZbzTgvnA7cI6Ftrcg](https://amp.theguardian.com/commentisfree/2023/may/08/ai-machines-hallucinating-naomi-klein?fbclid=IwAR1Jm5cuAU30pstMEsyK41fpqBYKkX74oCoiN63j_SZbzTgvnA7cI6Ftrcg).
- Luhmann, Niklas. *Observations On Modernity*. Trans. William Whobrey. Stanford: Stanford UP, 1998.
- Marcuse, Herbert. *One-Dimensional Man*. 1964. New York: Routledge, 2002.
- Marx, Karl. *Grundrisse: Foundations of the Critique of Political Economy*. Trans. and Forward by Martin Nicolaus. New York: Penguin Books, 1973.
- Noys, Benjamin. *The Persistence of Negative: A Critique of Contemporary Continental Theory*. Edinburgh: Edinburgh UP, 2010.
- NSA/CSS Threat Operations Center (NTOC). "Treasure Map: Bad Guys Are Everywhere, Good Guys Are Somewhere!" *National Security Archive* (accessed 15 April 2024). <https://nsarchive.gwu.edu/document/22626-document-01-nsa-css-threat-operations-center>.

- Overwijk, Jan. "Paradoxes of Rationalization: Openness and Control in Critical Theory and Luhmann's Systems Theory." *Theory, Culture, & Society* 38.1 (2020): 1-22.
- Parisi, Luciana. "The Alien Subject of AI." *Subjectivity* 12 (2019a): 27-48.
- . "Computational Logic and Ecological Rationality." *General Ecology: The New Ecological Paradigm*. Eds. Erich Hörl and James Burton. Bloomsbury: Bloomsbury Academic, 2017.
- . "Critical Computation: Digital Automata and General Artificial Thinking." *Theory, Culture, & Society* 36.2 (2019b): 89-121.
- . "Recursive Philosophy and Negative Machines." *Critical Inquiry* 48.2 (Winter 2022): 313-33.
- . "Xeno-Patterning: Predictive Intuition and Automated Imagination." *Angelaki* 24.1 (2019c): 81-97.
- Parisi, Luciana, and William Morgan. "What is (Machine) Philosophy?" *Qui Parle* 30.1 (2021): 185-207.
- Pasquinelli, Matteo. "On the Origins of Marx's General Intellect." *Radical Philosophy* 2.6 (Winter 2019): 43-56.
- Raley, Rita, and Russel Samolsky. "Rocket Theory." *Left Theory and the Alt-Right*. Eds. Jeffrey R. Di Leo and Sophia A. McClennen. New York: Routledge, 2024. 90-102.
- Shaviro, Steven. *No Speed Limit: Three Essays on Accelerationism*. Minneapolis: U of Minnesota P, 2015.
- Sprenger, Florian. "Surrounding and Surrounded: Toward a Conceptual History of *Environment*." Trans. Erik Born and Matthew Stoltz. *Critical Inquiry* 49.3 (2023): 406-27.
- Stiegler, Bernard. *The Neganthropocene*. Ed. and trans. Daniel Ross. London: Open Humanities Press, 2018.
- Weatherby, Leif, and Brian Justie. "Indexical AI." *Critical Inquiry* 48.2 (Winter 2022): 381-415.
- Wiener, Anna. "Holly Herndon's Infinite Art." *The New Yorker* (13 Nov. 2023). <https://www.newyorker.com/magazine/2023/11/20/holly-herndons-infinite-art>.
- Williams, Alex. "Escape Velocities." *e-flux journal* 46 (June 2013): <https://www.e-flux.com/journal/46/60063/escape-velocities/>.
- Williams, Alex, Holly Herndon, and Mat Dryhurst. "Re-Engineering Hegemony: Glass Beat in Conversation with Mat Dryhurst, Holly Herndon, and Alex Williams." *Glass Bead* (2016). <https://www.glass-bead.org/article/reengineering-hegemony/?lang=enview>.
- Williams, Alex, and Nick Srnicek. "#Accelerate: Manifesto for an Accelerationist Politics." *#Accelerate#: The Accelerationist Reader*. Eds. Robin Mackay and Armen Avanessian. Falmouth: Urbanomic, 2014. 347-62.
- Woods, Derek. "Prosthetic Symbiosis." *CR: The New Centennial Review* 22.2 (2022): 157-86.