Nonknowledge in Computation. Reflecting on Irrevocable Uncertainty

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Abstract

My article approaches the theme of computational creativity by looking at uncertainty as an epistemic and aesthetic tool that must be examined to address the challenges brought to critical practice by planetary computation. It positions uncertainty as central to how the encounter of the human practitioner with non-human machines is conceptualized, and as a resource for building speculative-pragmatic paths of resistance against algorithmic capture. It proposes ways to cultivate uncertainty and use it as a design material to produce new types of knowledge that question machines' pre-empting manoeuvres and resist their capture of potential. The argument proposed is that uncertainty affords the production of new imaginaries of the human-machine encounter that can resist the foreclosure of futures (what will be) and are sustained instead by the uncertainty of potential (what might be) (Munster). Dwelling in a space of potential – Deleuze's virtual, or what I call a space of 'maybes', requires of the practitioner a repositioning of their epistemic perspective and reflecting on the following questions: how can material knowledge be made by engaging with modes of un-knowing and not-knowing in machine interaction? How can these modes of un-knowing and not-knowing be fostered as a critical and political onto-epistemological project of reinventing critical practice for the algorithmic age? (Horl, Hansen, Pasquinelli and Joler). The article argues that the machinic unknown should be engaged with - not through the conventional paradigm that pitches human vs machine creativity and attempts to rank and score them through similarities, but rather through a (paradoxical) deepening of the unknowability at the core of the machine (Parisi) and machine's own incommensurability (Fazi 2020). It then proposes the Chinese notion of wu wei (active non action) (Jullien, Allen) as a stratagem to experiment with as a means to craft speculative-pragmatic interventions, and to augment the 'power of maybes' as a space of anti-production, and resisting reduction (Ito 2019).

Keywords: uncertainty, nonknowledge, incomputable, planetary, wu wei.

Introduction

My contribution to this special issue on Computational Creativity stems from the distinct perspective of someone who works across process philosophies, critical technology studies, and design theory, and is invested in building transdisciplinary and transversal modes of thinking. By bringing to bear, and by reflecting on, what may emerge at the intersection of these fields, my intervention seeks to contribute to the current discussions around the encounter of human and machine by suggesting that this encounter can be re-envisioned through the lens of *uncertainty*.

The article poses uncertainty as an onto-epistemic and aesthetic tool central to how the challenges brought to critical practice by planetary computation should be addressed, specifically to how the encounter of the human practitioner with the non-humanity of machines can be conceptualized. To do so the article uses the notion of the *incomputable* at the core of computation as its starting point and makes a case for the need to work with and through the uncertainty it contains. Put differently, what I am interested in is the generative power of the incomputable within computation from the perspective of the *uncertainty* unleashed by its *unknowability*. My thoughts concern how to reposition this uncertainty and this machinic unknowability as modes of knowledge-making that can resist predictive capture.

The article argues that the 'machinic unknown' should be engaged with, not through the conventional paradigm that pitches human creativity against machine creativity and attempts to rank and score them through similarities, but rather through a (perhaps paradoxical) deepening of the unknowability and uncertainty at the core of the machine. Put differently, I propose that uncertainty is cultivated and deployed as a design material to produce new types of knowledge that question machines' pre-emptive manoeuvres and resists their capture of potential. Contesting the still pervasive view that equates the machinic unknown with a hidden, occult, magic power, I argue instead that this ought to be framed both as a condition of a knowledge born of nonknowledge, as well as potential for retooling and resistance.

To begin to think otherwise as to how this uncertain and unknown space may be understood, felt and perceived I draw on a range of ideas also outside the field of computation. Ideas concerning knowledge and nonknowledge from Chinese and 'non-Occidentalist' thought are introduced to help frame uncertainty as the springboard for modes of thinking that are unafraid of entering the unknown and of making the unknown fundamental to practices of knowledge-making in computation and beyond.

Above I use the term 'paradoxical' to acknowledge the challenge of a position—the

exhortation to stay with the uncertain, and to dwell in it—that is bound to raise more questions than answers. My insistence on uncertainty must be seen as an effort to 'complicate' (more than explain) things. As Deleuze reminds us, 'complication'—containing the root of the Greek word *plekein* [pli, fold]—denotes the chaotic-ness of the virtual, the movement from the virtual to the actual and vice versa. It evokes the intense, unforeseen force of chaos. It should be seen in the present context as a plea to further complicate the terms of the discussion. Indeed, I would argue that for a critique of planetary computation to succeed in generating alternative modes of thinking, such a critique must push against existent discourses around what counts as human and as machine intelligence. It must dare to expand the space of the thinkable into the unthinkable, where thought reaches the limits of what it can think and then goes further, right off the cliff, into the wind, where it encounters the shocking force of the unforeseen, the unknown, and the uncertain. It is this uncertainty, I propose, that has the potential to become propeller and ally, challenge and critical resource for building speculative-pragmatic paths of resistance against algorithmic capture. Uncertainty is what affords the production of new imaginaries of the human-machine encounter that can resist the foreclosure of futures (what will be) and are sustained instead by the uncertainty of potential (what might be). Dwelling in the space of potential—what I call a space of '*maybes*'—requires of the practitioner a repositioning of their epistemic perspective and a reflection on the following questions: How can material knowledge be made by engaging with modes of un-knowing and not-knowing in machine interaction? How can these modes of un-knowing and not-knowing be fostered as a critical and political onto-epistemological project of reinventing critical practice for the algorithmic age?

Planetary Computation: A call for Category Upheaval (and Complication)

Planetary computation is not only "the most radical process of artificialization of intelligence that human history has ever seen,"[1] but also a condition of no-return, signifying both the non-containability of the polycrisis the world is facing, and the urgency of breaking with entrenched human-centred modes of thinking that appear to be no longer adequate. It is the planetary that demands an onto-epistemic rethinking able to question fundamental categories of Western thought while affording the invention of new concepts and modes of thinking and existing.[2] The ecosystem we humans inhabit and share with a

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1   Luciana Parisi, "Instrumental Reason, Algorithmic Capitalism, and the Incomputable," in *Alleys of Your Mind: Augmented Intelligence and Its Traumas*, ed. Matteo Pasquinelli (Luneburg: Meson Press, 2015), 130.

2   Some of those concepts may be 'new' to the current system of extractive violence we inhabit, but 'old' and existing already in modes of thinking, cultural practices and conceptual paradigms found other systems of thought.

multitude of other forms of organic and inorganic life has never been so brutally (and yet so beautifully in its undisclosed, unrealized potential) exposed as planetary until now. On one hand, we are facing agents that are truly planetary as they do not care about political borders, nation-states, or walls—whether microbes, viruses, atmospheric pollution, ocean plastic, or algorithmic data streaming through digital infrastructures. On the other, as the Earth is growing both by design and by accident, an unparalleled "smart exoskeleton of sensors, satellites, cables and data centers—a distributed sensory organ and cognitive layer,"[3] established ideas around what counts as knowledge, what counts as cognition, and what counts as human, have become outdated.

Categories must be rethought, urgently. Categories that have been in use for a long time—human, machine, natural, artificial, synthetic, organic, inorganic—appear to be inadequate for a seriously critical and creative project of re-thinking the encounter of human and machine. We still live by the modern concept of the human that emerged in a specific place (Europe) in a specific time (Enlightenment), a notion that pitted the 'human' equally against nature (as superior to it), and against machines (as other than them).[4] Still ensnared by a notion of intelligence based on the human brain and the human nervous system, our anthropocentric and zoocentric narcissism feeds an exceptionalism whose consequences are deadly for all that exists. But as Catherine Malabou lucidly shows, intelligence is a value-laden notion, which has historically operated as a racialized dividing practice to differentiate between peoples and reaffirm the superiority of some groups over others.[5]

While the theoretical void left by the inadequacy of these categories is colonized by the agendas of what Tiziana Terranova calls the Corporate Platform Complex (CPC)—the privately owned "worldwide infrastructure that has brought together technologies of communication and computation, connection and calculation in unprecedented ways"[6]—a reterritorialization is also underway. Reactionary forces drive a re-entrenchment of universals (the Human, the Technology, the Progress, the Future, etc.) precisely when their terminal fragility, obsoleteness, and inadequacy are at their historical peak. At the same time, the void left by these no longer-adequate categories is filled by the Corporate Platform Complex and its pervasive modes of engagement that are designed to be extractive (as they extract value from human attention, labour, sleep-time, eyeballs,

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3   Benjamin Bratton, "Planetary Design," in Achille Mbembe, Benjamin Bratton and Anne-Marie Slaughter, "Noema Insights: Explorations Of The Planetary" *Noema Magazine*, no. 3 (Fall 2022), 62.

4   Tobias Rees, "Non-Human Words: On GPT-3 as a Philosophical Laboratory," *Daedalus, The Journal of the American Academy of Arts and Sciences* 151, no. 2 (2022): 169–170.

5   Catherine Malabou, *Morphing Intelligence: From IQ Measurement to Artificial Brains* (New York: Columbia University Press, 2019), 24–26.

6   Tiziana Terranova, *After the Internet: Digital Networks Between Capital and the Common* (South Pasadena: Semiotext(e), 2022), 7.

life itself), predatory (as they are driven by stakeholder capitalism's imperative to profit growth) and pathogenic (as their by-product is endemic malaise). With the stimulus/ reward mechanism in full operation monetizing every aspect of our lived experience, the Corporate Platform Complex keeps on diverting attention, capturing potential, and flattening ambiguity. It keeps on seizing uncertainty.

As Terranova points out, however, the issue is not with digital technologies per se, but with the for-profit technocratic agenda that propels them, which has imposed itself as a seemingly inexorable techno-deterministic destiny. Indeed, she makes a passionate call for a radical reappropriation of the modes of digital engagement based on other values of solidarity, sharing, and sympathy. There is therefore work to be done towards building an alternative vocabulary, a different portfolio of resources, a repertoire of speculative-pragmatic otherwise-ness: ideas, visions, and gestures that can sustain new imaginaries and tell new stories. I ask: What would it take to generate novel, creative, but also radically weird, powerfully other, uncompromising alien 'images to think computation with' that are different from those manufactured by the agendas of Corporate Platform Complex, Artificial Intelligence labs, and ultra-reactive government policies?

Other questions emerge: How is the 'artificial' in Artificial Intelligence (AI) conceptualized? What kind (and whose) 'intelligence' is meant by it? How can modes of being human be re-thought in the era of intelligent machines? What is the impact of the automation of automation on what counts as knowledge? Finally, how can we—practitioners, thinkers, makers, designers, change-makers, educators, *thinkerers*[7]—reflect on, engage with, and contest, the artificial and the intelligent, and automation as a form of knowledge-making, in our interventions? Whichever community of practice we inhabit, whichever groundswell sustains our work or stops us in our tracks to make us think, how do we push back against algorithmic capture, resist the reduction of potential, and clamour for not-thought-yet modes of thinking and existing?

We know that the use of predictive algorithms as a fundamental support in the processes of decision-making is an epistemological shift in the way in which what counts as knowledge is built (and truth and non-truths are construed). Algorithmic decision-making changes profoundly not only how decisions are taken but the dynamics of knowledge production. The rise of what Dan McQuillan calls machinic Neoplatonism has epistemological consequences: the notion that mathematics is neutral, that computation is objective and that their computed outcomes are the reality.[8] The risk is that this new episteme

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7   *Thinkerer* is the hybrid of 'thinker' and 'tinkerer', and highlights how the act of thinking is also a *practice*, messy, material, of experimenting with ideas, with open-ended and unforeseeable outcomes.
8   Dan McQuillan, "Data Science as Machinic Neoplatonism," *Philosophy and Technology* no. 31 (2018), 266.

leaves no space for uncertainty because it is taken as a new truth or, on the contrary, that hysteria about transparency, interpretability, and explainability prevails (and with it the self-righteous compulsion of breaking the black box). I suggest a third route: one where uncertainty in itself is deployed, experientially and experimentally, to rethink the relationship between the human and machine.

The Uncertainty of the Incomputable

With his seminal 1936 paper, Alan Turing proved the logical impossibility of predicting which machine, given a certain input would halt and which would not. Thus, the model of computation that we inherited from Turing arrived already with "a mathematically simple avatar of incomputability on its back."[9] Or, as Robert Jackson puts it "computation emerged from the theoretical failure to reduce all mathematics into a formal decidable set of axioms."[10] Despite understanding from its very beginning that not everything is computable, it was only by claiming a flat digital ontology with no space for incomputability that 20th century computation was able to advance. Paying attention to the incomputable, and to the uncertainty and unknowability it engenders, becomes therefore essential in order to make sense of key aspects of human-machine interaction, starting with the dissonance between this core of uncertainty and the blind faith put in algorithmic procedures. It is worth recalling that while uncertainty in computation remains surprisingly understudied, it was not always the case. In the 1980s, AI studies took uncertainty as inevitable but, as Stuart Russell points out, a consensus was quickly reached that a "perfect knowledge of the objective"[11] should be conveniently and arbitrarily assumed.

Incomputability has been studied by a number of scholars for whom the incomputable is the randomness that had to be colonized within the history of computation,[12] the incommensurability of human and machine decision-making processes,[13] and the alien of algorithmic reasoning.[14] In looking closely at this space where incomputability, unknowability, and uncertainty meet, I draw on Luciana Parisi's project to "critically

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9   Barry S. Cooper, "Incomputability, Emergence and the Turing Universe," in *Causality, Meaningful Complexity and Embodied Cognition,* ed. Arturo Carsetti (Dordrecht: Springer, 2010), 138.

10   Robert Jackson, "Continental Realism and Computation: Turing's Propaganda" in *Weaponising Speculation*, ed. Caoimhe Doyle (Punctum Books, 2014), 13.

11   Stuart Russell, "If We Succeed." *Dædalus, the Journal of the American Academy of Arts & Sciences* 151, no. 2 (2022), 51.

12   Alexander Galloway, *Uncomputable: Play and Politics in the Long Digital Age* (London: Verso, 2021), 3.

13   Beatrice M. Fazi, "Beyond Human: Deep Learning, Explainability and Representation," *Theory, Culture & Society* 38, no. 7–8 (2021): 66–67.

14   Parisi, "Instrumental Reason, Algorithmic Capitalism, and the Incomputable," 136.

reclaim the unknown and the incomputable from the paranoid apparatuses of white-male subject of humanism, and equally from a mindless trust in error."[15]

In her work that draws on Gregory Chaitin, Parisi defines the incomputable as "increasing yet unknown quantities of data that characterize rule-based processing."[16] Reached when the output is greater than the input, the incomputable is characterized by algorithmic randomness that designs new infinite spaces of probabilities. Because the transformation of data occurs in the discrepancy between input and output, computation is made of increasingly *unknowable* probabilities. Parisi further explains: "the increasing volume of incomputable data (or randomness) within online, distributive, and interactive computation is now revealing that infinite, patternless data are rather central to computational processing."[17] The incomputable is therefore both the *limit* and the absolute *condition* of computation. It is the incomputable that drives the automation of automation and the progressive autonomy of algorithmic thinking.

Post-cybernetic machines are evolving their capacities to observe, evaluate, pattern, model, and predict by using unpredictable results as a recursive asset. This process creates a "new kind of empiricism in which data is 'liberated' from the static condition of the given. Data is now stretched to embrace potentiality, indeterminacy, and contingency."[18] As it expands into the nonhuman territories of the machine, algorithmic automation exposes "the transcendental schema of reason to the experimental becoming of thought."[19] In other words, by creating non-observable realities, algorithmic patterning produces opportunities for meanings, knowledge, and modes of thinking that can radically question existing structures of thought. In this sense algorithmic automation signals the irruption of a novel, alien mode of reasoning, one that is no longer based on deduction, causality, instruction-giving and the recognition of existing patterns, but rather on a kind of adaptive learning that produces patterns of non-observable events. As machines evolve they develop their own logic, a mode of abductive thinking driven by open-ended hypotheses, that uses uncertainty, indeterminacy and the unknown of the incomputable to generate speculated realities that can escape the capture of data normativity.[20] What counts as (human) cognition is already changing because of the (nonhuman) unforeseen patterning and swerving of machines.

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15   Luciana Parisi and Antonia Majaca, "The Incomputable and Instrumental Possibility," *e-flux* 77 (2016): 4.
16   Parisi, "Instrumental Reason, Algorithmic Capitalism, and the Incomputable," 133.
17   Parisi, "Instrumental Reason, Algorithmic Capitalism, and the Incomputable," 131.
18   Parisi and Majaca, 4.
19   Luciana Parisi, "The Alien Subject of AI," *Subjectivity* 12, no. 1 (2019): 43.
20   Luciana Parisi, "Critical Computation: Digital Automata and General Artificial Thinking," *Theory, Culture & Society* 36, no. 2 (2019): 93.

The radical potential of automated cognition

Not only is automated cognition producing non-conscious intelligences swarming across "protosentient" neural nets,[21] it is also, crucially, a way of knowledge-making that proposes an alternative to the dominant servo-mechanic paradigm of technology. This paradigm reveals the subsumption of a displaced, othered labour force predicated on the enslaved body, whose coercive discipline feeds the machinic production of surplus value. While this model concerns the violent extraction of value from labour (in the plantation first, then in the assembly-line, and finally from the 'immaterial' toil of cognition, affect, and attention), it is also predicated on an historically specific notion of the human, claimed as universal. As the Critical Computation Bureau puts it: "Within the history of machine epistemology, industrial capital took on the prototype of automation, replacing the archetype of enslaved labour. With the invention of the robot, the enslaved became enfleshed in machines as much as machines became the host of already brutally wounded flesh."[22]

It is precisely this servo-mechanic model that is now being challenged by the new, alien, space of automated reasoning emerging in the indeterminacy of machine thinking. The opportunity offered by the automation of automation is to shift from the automation of human labour, whose prototype remains the enslavement of bodies by the industrial/plantation machine, into a novel territory where the techno-deterministic fiction that has buttressed the colonial, extractive and racial logic of computation can be faced and overturned. What is at stake here is that the transformation of reason occurring in machine thinking offers the opportunity to move outside the realm of the universal rational human and away from a system that continues to replicate the violence of the colonial episteme.[23] In other words, no critique of automation, no critique of technology, no critique of planetary computation can take place unless the question of colonialism as the founding project of the servo-mechanical model of technology is concomitantly addressed.

In *Anarchic Artificial Intelligence,* Louis Chude-Sokei powerfully writes:

> But the term Artificial Intelligence was coined in anxiety. It segregated

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21   Katherine N. Hayles, "Inside the Mind of an AI: Materiality and the Crisis of Representa-tion," *New Literary History* 54, no. 1 (2022): 661.

22   Critical Computation Bureau, "Dialogues on Recursive Colonialisms, Speculative Computation, and the Techno-Social," *e-flux* 123 (2021): 2.

23   See Rees, "Non-Human Words: On GPT-3 as a Philosophical Laboratory" for a lucid analysis of GPT-3 that disputes claims around the universalization of human language and disrupts human exceptionalism. On this basis, he proposes the new mode of language it creates as basis of a new ontology where language is seen as a general theme with human and non-human (including machine) variations.

human beings from machines by insisting on two forms of intelligence—artificial and authentic. This maintained the power of the latter over the former. All humans made tools, but some tools allowed their creators to claim humanity for themselves. Other humans were figments of a pre-technological world, as much animals as actual machines. They could only mimic and follow commands. They had no souls. Their intelligence was essentially artificial. Such creatures were suited for slavery. This was how those anxieties about agency and intelligence would simultaneously create an enduring fiction, or algorithm. It was called 'race'.[24]

The legacy of this servo-mechanical model of technology, with its inherent predatory, violent, colonial exploitation, cannot be undone nor disregarded. No critique can take place unless this genealogy of technicity is addressed.

One way of engaging productively with this non-negotiable critique of computation is to enlist uncertainty in the effort of breaking with established modes of thinking about technicity, computation and automation. The uncertainty within computation—the incomputable or 'machinic unknown'—has the potential to be re-imagined as a space productive of new modes of knowledge only if the lure of techno-enchantment (the acquiescence to be seduced by the inhuman prowess of the machine) is avoided. The mystification of the unknown as esoteric depth is one of the most powerful rhetorical devices in the grand narratives around AI. Head of Microsoft research and co-founder of the AI Now Institute Kate Crawford and digital media scholar Alexander Campolo call it "enchanted determinism": "a discourse that presents deep learning techniques as magical outside the scope of present scientific knowledge, yet also deterministic, in that deep learning systems can nonetheless detect patterns that give unprecedented access to people's identities, emotions and social character."[25]

To re-imagine the uncertainty within computation as productive has direct implications for how the creative process may be rethought. By repositioning creativity away from its humanist legacy so that other modes (nonhuman, machinic, distributed) of novelty production, not necessarily predicated upon human singularity and exceptionalism, may be considered, the either/or model that informs human and machine creativity and the competitiveness it entails may be disabused.

This perhaps can happen only on the condition that the correlation between creativity and 'uncertainty' that peppers neoliberal discourses is slacked, made inoperative, and

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24   Louis Chude-Sokei, "Anarchic Artificial Intelligence," 2021.
25   Kate Crawford and Alexander Campolo, "Enchanted Determinism: Power Without Responsibility in Artificial Intelligence," *Engaging Science, Technology, and Society* 6 (2020): 3.

reclaimed in another form, by deepening our understanding of the mechanism of capture, extraction and value-production on one side, and by turning to other bodies of knowledge to conceptualize uncertainty on the other.

Again, to address these points means to acknowledge that the planetary transformations impacting human cognition require the dismantling and the unmaking of no-longer adequate epistemic categories and then a re-making around profoundly 'other' criteria. As Katherine Hayles remarks, the belief that only humans have the capacity and the right to generate meaning is "a view that has already wreaked havoc in our relations with our biological symbionts."[26] This is where the significance of other (non-Western and nonhuman) bodies of knowledge becomes clear and urgent.

Incomparable Intelligences: The Fallacy of Wishing AI to be Like 'Us'

A place to start is by questioning the narratives circulating around Artificial Intelligence in order to imagine different stories that stay clear from both paranoid fear and a-critical techno-solutionism. This means to expand the repertoire of images to think with so in order to generate critical, creative, transversal, and unconventional figurations. We must rethink the stories that are served to us by the techno-media-entertainment complex. We must question their naturalized and fatalistic 'inevitability'.

While mainstream public narratives around human engagement with machines are riddled with hyperbolic antagonism—of the kind that fabricates media panic about rogue robots bent on destroying humanity or else extolls with optimistic fervour the virtue of the singularity—a more moderate approach would instead show that to insist in comparing artificial and human intelligence is a rather meaningless endeavour.[27] Not only is it an oversimplification to place the development of an artificial intelligence on a human-centric, one-dimensional, numerical scale of intelligence; this would also glosses over the fact that the cognitive capabilities of AI are simply not commensurable with the human ones.[28] Russell's argument is important as it underscores the fact that this incommensurability is rooted in irrevocable uncertainty. In his view, given the uncertainty derived from the fundamental irrationality of humans and the extent to which human actions often fail to be aligned to their preferences, the only way an AI can be conversant with and able to follow objectives devised by humans (with all their inevitable fluctuations, contradictions,

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26   Hayles, "Inside the Mind of an AI: Materiality and the Crisis of Representation," 661.
27   Russell, 48
28   For example, while a search engine can remember very well it cannot plan; conversely a chess program can plan exceedingly well, but cannot remember. Computation power does not translate into basic dexterity and hand to eye coordination etc.

and disorder) is by making uncertainty an integral part of the process. Put differently, in order for AI not to become an 'existential threat' to humanity, and to be consistently trustworthy and obedient to human commands, machines must learn to follow objectives about which they cannot but remain uncertain.

And while uncertainty here is presented not just as the result of imperfect knowledge (asymmetrically distributed information), but as something that at a deep and irrevocable level concerns the human condition per se, this view simply does not go far enough. It remains comfortably within the remit of an anthropocentric AI (designed to serve the human) and complicit with the servo-mechanical paradigm of technology seen above. It must be stressed, again, that to keep on insisting on a humanlike AI, as if 'the human' was a universal and neutral category and not the index of historical exclusion, epistemic violence, and privilege, is an ideological fallacy that must be contested. Delinking AI from the pathological perversion of wishing it to be like us would therefore mean to begin re-thinking AI not as an intelligence which is 'artificial' (as opposed and subservient to 'natural'), but as one of the many kinds of intelligence already evolving otherwise: along nonhuman, more-than-human, non-anthropocentric, potentially weird, and relentlessly surprising trajectories that may be bio-synthetic, distributed, symbiotic, parasitic, opportunistic, mycelial, swarmy, contagious, simmering, networked, all of these things together, or none (we do not know). Crucially, it would also mean to reposition our understanding of AI and, broadly, of the encounter between human and machine, on the slippery territory of the uncertain, the unknowable, and the unknown. To clarify, uncertainty in this context is not just the human condition (of irrationality and chaos) that machines must learn in order to be functional to our needs; but the fundamental onto-epistemic condition of the post-Newtonian material world. As quantum theory has shown from Heisenberg onwards, uncertainty *is* the very fabric of a world made not by distinct objects but by relations.[29] It is the radical irrevocability of uncertainty that braids the epistemic and ontological dimensions together with invisible matter.

A onto-epistemological speculation thus emerges, of a scenario populated by machines, humans, and variously distributed, semi-evolved, tendrilous, adaptogenic, silicon-carbon hybrid intelligences, whose modes of interacting may span a range of *-ships* (kinship, allyship, stewardship, custodianship, companionship, apprenticeship, and more) driven by co-habitation, co-evolution and co-creation.

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29   See Carlo Rovelli, *Helgoland. The Strange and Beautiful Story of Quantum Physics* (London: Allen Lane, 2020); Karen Barad, *Meeting the Universe Half-way. Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2017).

Nonknowledge and the Potential of the Blur

Looking now at uncertainty from an epistemic perspective, I ask: what kind of knowledge is uncertain knowledge? Beyond the infamous 'unknown unknowns', I take seriously the challenge of rethinking uncertainty from the nonknowledge and the unknowing it produces and their generative potential.[30] Nonknowledge evokes the ignorance of not knowing something, perhaps a lack or a void in knowledge, and it is often depicted as fog, as cloud, as opacity, and as the blur that prevents clarity of vision and thinking. Let us recall how in Western thought, dominated by Greek ontology and epistemology, 'to know' has to do with clarity, intelligibility and transparency. The object of knowledge emerges as a well-delineated entity against the background. Blurriness and opacity are the enemy of knowledge, and are used to conventionally depict lack of knowledge, ignorance, and nonknowledge. Indeed, from a (Western) ontological perspective, knowledge must make well-evident (clear) the difference between being and nonbeing, and push against any tangle that may threaten their distinction. Ontological confusion must be rejected for the sake of clarity and non-ambiguity.

To think about nonknowledge otherwise I now make a (very brief) detour to include two different approaches—the first from a 'non-Occidentalist West' that reclaims Western indigenous marginalized theories, and the second from Chinese cultural tradition—that taken together may help us configure a counternarrative of sorts about nonknowledge. The intention is to evoke, even with such a short excursus, how uncertainty and nonknowledge may be re-envisioned and re-cast as space of possibility and potential.

First, Boaventura De Sousa Santos draws on medieval scholar and mystic Nicholas of Cusa's doctrine of learned ignorance (*docta ignorantia*) according to which to know is to know the limits of one's knowledge. Nonknowledge does not have to be ignorance intended as a lack, or a defect, or a black void, but can become the propeller of transformative learning: one learns not in order acquire more knowledge, but to be changed by it. Thus, the process of learning is at once humble (because it is aware of its own limits) and plural (because its inherent conjectural and incomplete nature means that one will stay open to all other possible knowledges).[31] De Sousa Santos' reading of Cusa is highly significant.

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30   I refer of course to the "known knowns, known unknowns, unknown unknowns, and unknown knowns" popularized after the response given by United States Secretary of Defence Donald Rumsfeld to a question during a U.S. Department of Defence news briefing in 2002, about the lack of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups. For the full brief text see https://archive.ph/20180320091111/http://archive.defense.gov/Transcripts/Transcript.aspx?TranscriptID=2636.

31   Boaventura De Sousa Santos, "A Non-Occidentalist East? Learned Ignorance and Ecology of Knowledge," *Theory, Culture & Society*, 26 no. 7–8 (2009), 115.

Not only does the doctrine of learned ignorance become a route that makes Western non-Occidentalist thought surface, thus indicating an important direction for studies of decoloniality, but it also offers a profoundly relational and horizontal understanding on nonknowledge and of the generative potential of the uncertainty that is felt when we, simply, do not know.

Then, in Chinese thought, we encounter the blur of nonknowledge. Far from being a problem with no definition, an impenetrable hurdle, an un-chartable territory, or a paralysing difficulty, the blur is what "makes knowledge inexhaustible."[32] It is what makes knowledge possible. Take war strategy. What for the Western strategist is an obstacle to overcome (the impenetrable fog of war), for their Chinese equivalent is a formidable resource. In a cultural tradition predicated on relationality and interconnectedness, the ontological indeterminacy conveyed by the blur becomes the very condition of knowing. Too much clarity is utterly suspicious. The uncertainty it expresses is not an obstacle, a sign of a confused, ignorant or naïve mind. It is where the *potential for knowledge* resides. Put differently, the blur is the space of the *incipience* of things, what Deleuze calls the *virtual*, and Carlo Rovelli calls the incandescent matter of reality.

The uncertainty of an incomplete or blurry knowledge becomes the vehicle through which one can grasp unseen propensities: "the potential that originates not in human initiative but instead results from the very disposition of things."[33]

The capacity to grasp and move with the propensity of things is how the space of nonknowledge can be entered. This is where the Chinese notion of *wu wei* ['*wu* = no + *wei* = action/doing] is particularly illuminating. *Wu wei* precisely concerns the subtle understanding of the propensity of things so that we can act in alliance with how circumstances unfold and not against them, without using external energy or force. *Wu wei* is non-action that leaves nothing undone.[34] The negative (not doing) does not mean passive inaction nor lack of agency or intention, but rather the intentional crafting of skilful ways of responding to situations. It is the art of knowing where possible futures are being birthed (*ars nasciendi*), the direction that they are about to take and the practice of changing with them, rather than fixating on their form and identity. The beauty of *wu wei* is that it cannot be pre-planned: it is not a fully cognitive deliberation.

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32   Barry Allen, "The Cloud of Knowing: Blurring the Difference with China," *Common Knowledge* 17, no. 3 (2011), 452.

33   François Jullien, *The Propensity of Things. Toward a History of Efficacy in China* (New York: Zone Books, 1995), 13.

34   Jeaneane Fowler and Merv Fowler, *Chinese Religions. Beliefs and Practices* (Brighton and Portland: Sussex Academic Press, 2008), 103.

Thus, nonknowledge can be entered into by unlearning certainties, while learning the "subtle signs of incipience, the beginning or becoming of things."[35] This has to do with the *dao*, the art of transforming with changes, which is in part "an art of knowing what is not known and what not to do."[36] Chinese philosopher Kuang-Ming Wu remarks on "how absolutely indispensable *wu wei* is for our flourishing and survival".[37] I would add, *wu wei* may be absolutely necessary for resistance, too.

Conclusion: Resistance is First and Foremost Epistemic

Can a practice of unlearning certainties, while learning to seize the subtle propensity of things be taken on board in how we think critically and creatively about the challenges brought by computation this article has sketched? Can the nonknowledge afforded by uncertainty entered into, explored and experimented with, as the generative, productive, and transformational space of being attuned to, and working with, uncertainty's own potential? What would it take to accept that what counts as knowledge must *include* the unknown, the blur, and nonknowledge; that making friends with uncertainty may be the best way to learn it? Here we begin to see uncertainty as a critical resource and an ally in the project of building the new imaginaries and the new stories planetary computation calls for. A serious rethinking of AI from the position articulated so far must focus on a mode of knowledge production that includes *both* calculation and unknowability. Instead of casting about for more interpretation—with all the risk of falling back into enchantment and determinism—instead of striving to open the black box, this article suggests complicating matters further by leaning into the unknowability within AI systems.

Discussing the current understanding and misunderstanding around technology, Yuk Hui points out how "every piece of technology contains complex ontological, epistemological, and cosmological assumptions,"[38] which become scripted in how that technology is used, the relations it goes on producing, and the social imaginaries it creates. For instance, platform technologies are underpinned by the assumption that society is made of atomised individuals, and that by simply connecting these 'social atoms' (as dots linked by tracing a line in a graph) one would understand their relation—ignoring the role of the collective, the groups, and communities in the making of societies. To create a truly different kind

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35   Barry Allen, *Vanishing Into Things: Knowledge in Chinese Tradition* (Cambridge, MA: Harvard University Press, 2015), 24.

36   Allen, "The Cloud of Knowing: Blurring the Difference with China," 484.

37   Kuang-Ming Wu, "*Wu wei* after Zhuangzi," in *The Imperative of Understanding: Chinese Philosophy, Comparative Philosophy, and Onto-Hermeneutic*, ed. On-Cho Ng (New York: Global Scholarly Publications, 2008), 174.

38   Yuk Hui, "The Call of the Unknown in Art and Cosmotechnics" *e-flux* 136 (2023): 9.

of technology (e.g., a different kind of AI) what must change therefore are the stories that subtend it, the ontological, epistemological, and cosmological assumptions that inform it; its social imaginary—not just the piece of technology in itself. And this is why, as Hui asserts, today "the most profound resistance is epistemic."[39]

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39   Hui, 9.

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