

Whose Time Is It?

Book Presentation:

Stamatia Portanova in Conversation

with Iain Chambers, Luciana Parisi

and Tiziana Terranova, Introduced

by Geoff Cox

STAMATIA PORTANOVA

Università degli Studi di Napoli "L'Orientale", ITALY

IAIN CHAMBERS

Naples, ITALY

GEOFF COX

London South Bank University, UK

LUCIANA PARISI

Duke University, USA

TIZIANA TERRANOVA

Università degli Studi di Napoli "L'Orientale", ITALY

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Abstract

On November 29th 2023, *Whose Time Is It? Asocial Robots, Syncholonialism and Artificial Chronological Intelligence* by Stamatia Portanova, was presented online by Iain Chambers, Luciana Parisi and Tiziana Terranova, in conversation with the author. The event was introduced by Geoff Cox, one of the two editors, together with Jacob Lund of the series *The Contemporary Condition*, in which the book was published. After a short introduction of the main themes of the book, this article provides for a transcript of the conversation.

Keywords

blockchain, Artificial Intelligence, chronognosis, colonialism, new rationalism

There are two gateways into the book *Whose Time Is It?*: the first is a technological interest in blockchain and AI. The second is a philosophical interest in time. It basically tries to understand time as it is elaborated by machines. Obviously, this is a ‘timely’ issue, because these kinds of machines (see for example Sophia the robot) are increasingly part of our contemporary present, and prospective future. But how do we really define a present and a future? And more importantly, how do these machines themselves understand, know, sense time?

A starting point for the book is the work of psychiatrist and phenomenologist Erwin Straus, who in the ’60s wrote an article entitled ‘Chronognosy and Chronopathy’, where he argued that a normal, ‘healthy’ perception of time is the result of a combination between individual experiential time, and the socially imposed time of calendars and clocks. In this sense, *Whose Time Is It?* tries to understand if ‘our’ sense of time falls into these definitions: perhaps, cybernetically speaking, it is the case now to reverse definitions of pathology and health, and recuperate what Straus defined as psychosocial illnesses (not knowing the time, or knowing it without knowing our place in it, depression as lack of a future sense, or euphoria as lack of a past sense), as points of departure for social and cultural change in our attitude towards technology.

The book is divided into three sections: the first deals with N. Land’s definition of the blockchain as a Kantian absolutization of time: blockchain as an archive of the past and a chronometer for the present. This kind of mechanic temporal cognition is also connected to AI (which is today technically almost inseparable from blockchain), another kind of technology which, to the contrary, only lives the future but without retaining any trace of the past. Two different, inferential and mnemonic chronognosies, which are building the ‘normality’ of cybernetic time, while always trying to imitate human cognition (human emulation is in fact always a final aim for scientific research into robotics).

The second part deals with this kind of ‘normality’, and of the progressive linear orientation of time, as a Western construction since the Enlightenment project, and the colonization of other cultures (and their respective temporal cognitions). In particular, *Whose Time Is It?* looks into the case of China, its advancements in terms of blockchain patents and AI applications (such as the infamous Social Credit System),

and its supposed centralized use of these technologies, also as a rhetoric of the ‘us good’ vs ‘them bad’, Eurocentric vision. The book therefore deals with temporal colonization, and with Y. Hui’s definition of cosmotechnics as a way to affirm cultural pluralism and chronodiversity, instead of the current homologizations implied by concepts of innovation and development.

The third section deals with the concept of the future, and basically advocates a remaking of AGI and technological research, aspiring not for the emulation of the human by technology, but to the contrary for a use of the technology itself as a sort of mirror into what the human can do and become, in order to get out of deleterious cultural, social, even physiological habits and structures. The main reference of this part is R. Negarestani’s new rationalism.

Transcript

Geoff: This presentation has been planned and delayed. Now here we are, so welcome, and it’s very exciting to be joined today by Iain Chambers, Luciana Parisi and Tiziana Terranova. We’ll just have short presentations and then Stamatia will respond, and then we’ll open up for discussion and comments from the audience.

To begin, I will say a few words about The Contemporary Condition book series to which the book belongs, trying to make this quite short, and then we’ll move on to the presentations. So just to set the book in context, it is part of a series that emerged as a research project at Aarhus University in Denmark, which was made possible by a grant from the Danish Council for Independent Research. The project ran from 2015 and involved Jacob Lund and myself, and five other researchers, some of whom might be here today. The purpose of the whole project was to investigate contemporaneity as a defining condition of our historical present, and was informed largely by the work of the philosopher Peter Osborne (2018) and his description of temporal complexity as the coming together of equally present temporalities, or times, or temporal unity in disjunction, as he’s put it. We wanted to build on this understanding of different kinds of time existing simultaneously across different spaces, but also to register much more strongly the role of technology in the construction of our experience of time – between

the micro-temporalities of human subjectivity and machine time, and the macro-temporality of art history, and of course politics.

The book series which emerged out of this project, edited by myself and Jacob, set out to extend these interests in multiple directions beyond our direct expertise. So we invited various commentators to contribute to the series, from different disciplines and subject positions. Many of these responded to the first book in the series, which was written by Jacob and myself, which we called ‘Introductory Thoughts’ as it tried to set out the discussion as far as we saw it at the time (Cox and Lund, 2016). Then, other examples in the series were quite eclectic, ranging from Wolfgang Ernst with a book called *The Delayed Present* (2017), to poetic contributions from Raqs Media Collective, in a book called *We Are Here But Is It Now?* (2017), to Lionel Ruffel’s book *I Can’t Sleep* (2021), which operates more like a short story. There have been 17 books in the series to date, and if you’re interested in the other ones, please go check Sternberg Press’s website, and they are also listed on the MIT Press website too.

Just one more thing to say, I think. The books, and their serial form, and their variations were something we wanted to register, so we invited the designers Dexter Sinister to develop a template (2017). Each book uses a different paper stock and a bespoke version of a typeface they developed which is based on computer scientist Donald Knuth’s metafont, which is computational.¹ So you can see with this book, it uses a particular variation of the font. For those of you who managed to see it, there’s a page at the back of the book which explains the variation of the font and uses a timestamp, and at the front we set out the agenda for the series. At the bottom of this paragraph, the series identifies three broad areas of enquiry for investigation: the issue of temporality, the role of contemporary media and computational technologies, and how artistic practice makes epistemic claims. So, it seems to me that the book that we’re celebrating tonight, *Whose Time is It?*, picks up on all three areas to an extent, in its stylistic form that involves a kind of fictional register as well as a theoretical one, and more particularly through a discussion of the technologies of Blockchain and Artificial Intelligence, how these technologies trouble established notions of human space and time, so far as to say that time plays a crucial role in the governance of blockchain networks and how they might be used to destabilize concentrations of power, or indeed claim to solve the problems of spacetime, as some commentators

have put it. The politics of all this is part of the discussion, and asking a really simple question like ‘whose time is it?’ seems to set the discussion off in a useful way, I think, for all of us presenting today. That’s all I really wanted to say, and I hope this contextualizes the series a little bit, and sets the scene now to concentrate on *Whose Time Is It?* through our invited 10 minute presentations. I think Iain you will kick things off.

Iain: Ok, I’m going to begin by talking about a film of 1987 by Peter Wollen, a film critic and theoretician. The film is called *Friendship’s Death*, in which there is Tilda Swinton. She portrays an alien humanoid from another planet. Still, she’s stuck in a seedy hotel with a British journalist in Amman during the Black September 1970, during the war between the PLO and the Jordanian army. In the end, the journalist leaves and returns to London. At the same time, Friendship, Tilda Swinton, makes the moral decision to remain with the Palestinians and so terminate her life in Black September. But Friendship is a cyborg from another planet. She complicates considerations of the human-machine interface with the introduction of moral intentions, fluid boundaries, empathy, and interaction. These are many of the themes that emerge in Stamatia’s book, complicating the picture we tend to have when we talk about the human-machine interface. And it deepens and disturbs, disrupts, I would say, the usual debate on the question concerning technology and the boundary and distinctions we seek to maintain between the human and the non-human. I think this is very thoughtfully and suggestively explored in Stamatia’s text, as Geoff says, in terms of thinking through a theoretical, critical level, but also through a more poetical level, how these questions can be taken on board and undone.

So I’m just going to list a series of observations inspired by my reading of *Whose Time Is It?*. They’re only one way of moving through this text, of course; it’s not suggesting any sort of authoritative reading. The first thing is how we are constantly confronted (and this comes through very clearly in Stamatia’s book) with the historical political struggle between the universal claims and coordinates of the colonial clock with its capitalist chronometry. The other times, the times of others, both human and non-human, material and mathematical, and this splitting of time from itself leads to what I would consider a form of quantum history. Here, spacetime fails to correspond to a single measure and universal consensus, contests the colonization of past, present, and

future, and folds, bends, and cuts up a consensual and hegemonic teleology. So, that opens up a space for thinking about the sort of asymmetrical relations involved in inhabiting a planetary spacetime constellation. Here, I'm thinking in particular of the contemporary migrants' time, the time of the migrant, how time is experienced by contemporary migrants in terms of time's elongation, suspension in the process and procedures of waiting, waiting to depart, to enter, to be recognized, in which all revolves around Stamatia's title, whose time are we speaking about. And further (and of course, this is the central argument of Stamatia's book) is the 'how' of time, the how of time takes us beyond a solely human measure and its social conception, from the time of a dog to that of an algorithm, between the clock and being lost, so stealing time away from the master's capitalist clock and the metaphysical spell of the market: from slave rebellions to Afrofuturism. To disrupt this, the term Stamatia uses is "chronopathological condition," the chronopathological condition of extraction and accumulation, and here of course, we can think about other times, you know, other ways of 'tempoing' time in music and the visual arts. These poetics of stretching, diluting and subverting, come through very strongly in what Geoff and Jacob discuss in their text *The Contemporary Condition. Introductory Thoughts on Contemporaneity and Contemporary Art*. But the central question of reconfiguring the past, the premises of its presentation and procedures in order to free it, going back in time in order to go elsewhere (again thinking of borrowing from musical practices, thinking about looping and dubbing time, producing echo and reverberation), is an undoing of classical historiography and chronological reasoning. And finally, what I was struck by is thinking about how to engage with what might be called postcolonial temporalities and quantum history, where the past never disappears but sediments in the stratified present, disrupting desired linearity. It leads to a different conception and constellation of spacetime and its technodiversity, which produces a displacing and detemporalizing, or at least a creative universe. So even the machine code, the robot, the algorithm, as Stamatia so convincingly demonstrates, can only involve (and this is a central, very important argument) the presence of the Other. Even machine code, the robot, the algorithm, requires the presence of the Other, its subject "has to remain vulnerable and exposed to an outside, an alterity, in order to interrogate and install its own intelligence" (Portanova, 2021). So these are some of the things I've learnt from the

extremely imaginative and creatively suggestive journey into time that Stamatia proposes in this important text. Thank you.

Geoff: Wonderful, thank you. We'll immediately move on to Luciana.

Luciana: Hi, thanks. Thanks for inviting me Stamatia, thanks Geoff and Jacob, and it's nice to see Iain and Tiziana as well, so I'm glad to be here today. I just have some remarks as well, and comments. I was very taken by this book in the last few days, I just had read it a little bit before but now I just learned more things about Stamatia's thought so far. I think that Stamatia brings to the fore the unavoidable question, when addressing the impossibility of a critique of technology today, the contemporaneity of critique today. The question is, in a word, how can the 'now' of the present be considered as collectively 'ours', whose time are we speaking about? This question is central to the very metaphysics of machines, or technology, as the modern enterprise of colonial capital, which as Stamatia argues, is grounded in this global standardization of time. The continuous circulation of tiny variations, variable infinities, into a temporal production of value, returns in this accelerated task of Artificial Intelligence, to absorb all sociality into automated machines. This is a new level or structure she is trying to describe, which comes from this microdiffused level of extraction of mineral conductors, data farms, cloud networks, surrogate workers, wastelands, that continue the accumulation of free time, i.e. time taken for free, time taken from love, time taken from sleep. Stamatia therefore takes us on a journey from the Common Temporal Denominator function, which assimilates the 'how' of the 'now' into what she calls the syncolonization of our everyday. Globally, in these Promethean images of progressive, successive temporalities that compete against each other, of the West, the East, the North and the South, a remarkable emphasis is put on the existence of phenomena that she calls profound estrangements, the leaking of alien time in automated intelligence itself (which Stamatia calls the autonomous temporal cognition of machines), which seems to refer to an alien time beyond cultural and social appropriations. Indeed, by reading this book one is reminded often of holding on to an image of the alien as a metaphysical possibility that does not, that cannot, be contained in the epistemological grounding of Being, the biological stratum, the biophysical and bioevolutionary explanation of existence. That is why the alienness of Artificial Intelligence can be said to be carrying within itself the marker of the

dispossessed, of stolen lives of colonial and racial capitalism, of what is fundamentally set up as the Other from the human. Alienness also here seems important for Stamatia, in that it indicates a premise or a promise of technodiversity, as well as a chronodiversity, which is not just culturally experienced but is also atomically lived, also at a quantum level. So I am interested here in asking: how Stamatia, in addition to what you already wrote, how do you conjugate or annex together these paradoxical conditions? In other words, where does the metaphysics of technodiversity come from? You give us an image of a technoheterogeneity with and through Artificial Intelligence as a premise and as a promise for a potential temporal transformation, something that you see stored already in the algorithmic tendency towards learning and self-cognition, a cognition that you point out, together with other people, must exist without a biological imperative, or even biological epistemology. So if this is the case, how can technodiversity cease to be a promising colonialism (when artificial cognition is already part of this modern project of colonial capital and of the Enlightenment, as we see in the reading of Kant or in Negarestani's [2018] reading of Hegel), and rather becomes a political and ethical practice of alienation, away from this self-transformative subject, away from the autopoietic function of epistemology, that indeed seems to me only to promise the subject to become other than itself, while holding on to its very metaphysical power? So this is a comment and curiosity I have.

Another comment that I would like to add here is how this journey that Stamatia promised to us presents itself as an incredible array of references and insights that bring together key tendencies towards developing a critical theory of technology that aims to challenge the pillars of Western metaphysics rooted in the intuition of space and time. One can immediately ask here, can machines have any other time rather than syno-chronic-programming, how can that be possible? Stamatia tells us, or takes us in this structure of the blockchain, the structure of deep learning, AIs like Sophia, to offer us a study in what she calls temporal automation, as a way to envision a cosmo-techno-philosophical project, where she argues also infinitesimals enter consciousness, and where consciousness is less a recognition of Being, and more a critical self-consciousness, a way for recursivity to function through change. This is a way in which the premises are transformed by the contingency of the process. So this is another point I am rather curious to hear more about: why would consciousness be less

problematic than cognition, once we admit a new self-cognition, how to avoid following the premise that it is precisely the capacity of self-correction, self-adaptation, self-regulation, self-transformation, that is what is over-represented in epistemologies excluding the possibility of not-knowing otherwise; i.e., how to divorce the artificiality of consciousness from rehearsing yet again another level of interiority of the subject, i.e. the self-cognition or the self-adaptation. What can the artificiality of consciousness do here to negate or challenge the premises of what Sylvia Wynter (2015) calls the autopoietic turn? So that's just a few questions I have, and curiosities about this wonderful journey I took so nicely with Stamatia in the last few days. Thank you.

Geoff: Thank you. We're going to hold the responses until after all three presentations, and I now invite Tiziana to present her thoughts.

Tiziana: hi, hi. I'm really happy to be here, and at last we managed, after Covid and everything that's happened, to organize this event. I have to say that I have quite a few books of the Contemporary Condition series on my bookshelf, such as those authored by Raqs, by Jussi Parikka (2017), and by Wolfgang Ernst. They are quite beautiful objects to carry around. And of course I have Stamatia's *Whose Time is It?*, which we are discussing today.

I'd like to start by bringing together the beginning and the end of the book. The beginning starts with capitalism, so with the question of how, the effort to colonize time and the future in particular is an essential part of capitalism, which has accelerated over the last decades. Financialization has been driving this new round of temporal colonization, where you actually have to constantly create these possible futures which you claim inasmuch as you can imagine them. And then, at the end of the book, you have Yuk Hui's critique of chronological monoculture and the arms race between the United States and China, which is literally happening on the same line of time (2016). In this last case, we have the reduction of technodiversity to a single technological monoculture, as he calls it. Stamatia argues that this reckoning with the power of the singular, homogeneous timeline which she calls syncolonialism is implicit in the notion of technodiversity. I think Denise Ferreira da Silva (2007) would call it the 'sequentiality' that is one of the pillars of the ontoepistemology of modernity. In sequential time, there is a single line, and everybody is on this line, and everybody is

competing. In particular all different nations are competing to be at the forefront of technological progress. So the question of the relationship between time and machines specifically becomes a fundamental component of any attempt to think beyond this technological monoculture, which is about different ways of thinking about time, but also different kinds of temporalities, and the relation with time that contemporary technologies imply. This means that Stamatia Portanova in this book is engaging in a kind of phenomenology of machine time, from the point of view also of the psychosocial pathologies of time, and the way in which machines can also display these pathologies. Of course we share an office, so we kind of talked about it a few times, and she kept mentioning the possibilities that are inherent in coupling blockchain technologies and Artificial Intelligence. She was of course referring to Sophia, the social and emotional robot that is a product of Hanson Robotics and Singularity.net, who is very much a protagonist and a heroine of this book. As a machine, one can say that Sophia tries to overcome the excessive specialization of Artificial Intelligence (where you have different types of AI, such as one for seeing, one for speaking, one for doing other things) by coding them as blockchain networks. That's quite an interesting idea as such. You can have a blockchain of Artificial Intelligences, which produces this effect of consensus and shapes the possibility of seeing Sophia as a person, or as a robot that tries to be a person. To see these two things as also hooked into this kind of utopian cryptoeconomy of the token (because you get Artificial General Intelligence and blockchain economy at the same time), I think that's quite an interesting starting point, within these frameworks of time, temporality of machines, capitalism monoculture and technodiversity. So my remarks for Stamatia concern, in the first place, the question of the blockchain, the blockchain networks. It seems to me that the invention of the blockchain constitutes the invention of a new type of network. If you take Gilbert Simondon's philosophy of technology (2016), he says that the point, the absolute origin of technical being lies with invention, even as the technical being also has its own ends, its own instrumentalities, which exceed its origin in as much as it proceeds by convergence, concretization, integration of groups of functions. If we think about different digital networks as technical beings, we can think of the Internet, which constituted a real break in the history of networks, and secreted its own time, that is the time of the movements of packets; then we had the Web, with its hyperlinking time, the creation of associations, which provided the data for the

development of network science. And now we have the blockchain, where the question of time is actually kind of reversed: blockchain, when seen from the point of view of temporality, challenges what we thought we knew about the network as a technical being. Stamatia has been studying the rhythm of the digital for quite some time, we remember her previous book, *Moving without a Body* (2013), and here it seems that the rhythm of the digital and the network rhythm has become, in a strange development, that of a dumb clock, combining this immutable shared past with a programmable future. So my first question for Stamatia is: you say that the blockchain has no rhythm, that the blockchain cannot dance, but it's just an elongation of metrical time, another formation of bureaucracy; and yet, we shared also quite a few encounters with the cryptoeconomy scene where there have been also speculations (such as those put forward by Laura Lotti [2019] which she quotes) about how this dumb but reliable clock-like machine that is the blockchain also has the power to create and break with the economy of social media, which relies on network effects, making the circulation of economic information simultaneous with the production and control of value. So my question is about this coupling of the dumb clock and all these kinds of economic and social milieus which are flocking to blockchain networks to create different modes of value, how do you think the time of the blockchain, and the technosocial time of these new modes of connectivity relate to each other.

The other remark I have is about the style of the book, which is in line with the Contemporary Condition series, of course, where art, as Geoff and Jacob claim, can operate as an advanced laboratory for investigating processes of meaning making, and for understanding the developments within culture and society. It also made me think about Da Silva's call (2016) to release thinking from the grip of certainty and embrace the imagination's power to create with unclear and confused or uncertain impressions, which are supposed to be inferior to the formal tools of the understanding for Kant. So I think that one of the trademarks of Stamatia's work is this combination of the analytical, the speculative and the fictional, which I think belongs to a line of critical theory, but at the same time meets the contemporary tendency towards the fictional, which is probably also a result of the kind of positivist turn of the modes of the social sciences and computing. I know that Stamatia is very much influenced by, and she's read with great interest, Reza Negarestani's work, so I felt that fiction, speculative

fiction, speculative theoretical fiction tendency in her work, and I think that operated with the character of Sophia. Therefore I'd like to ask her about this program of re-writing Sophia's story, or running Sophia into the text, as a character that takes us into this journey, into the phenomenology of the machine that combines the temporality of machine learning, with this processing of hypotheses and logical inferences, and the kind of military march of blockchain, to create this effect of personhood without interiority. I liked the way in which Sophia travelled through the book. She was just sitting there with Will Smith, on a roof terrace, at the beginning. I watched the video and it's completely uncanny of course, her facial expressions and also his reaction to her.² And then Stamatia takes us with her into these kind of globetrotting marketing journeys advertising Singularity.net, as an advocate with a Saudi passport of robots rights, and then she puts Sofia on this spaceship and projects her into space, in a kind of spacetime relativity continuum where all kind of concepts of time are explored. So my two questions are: what is the political value of, or the political implications of, this coupling of the blockchain's dumb clock and how different it is from other types of clocks (such as the Chinese water clocks that she describes), with their utopian economic milieus? And what about the choice of pursuing a fictional mode of writing, in spite of the fact that as a style it runs counter to the tendencies of contemporary disciplines to foreclose this kind of more speculative possibility, while one can find the value of working with speculative fiction, like Haraway (2016) and Negarestani (2008) in contemporary critical theory. Thank you very much.

Geoff: Thank you. So, Stamatia, do you want to respond? I don't know if you've managed to remember all of these questions, or if you took notes, but there are lots of pretty direct questions coming to you, so please feel free to respond, or make further comments yourself.

Stamatia: I will start from Iain's suggestion about the fact that the book seems to complicate the human-machine boundaries: that actually came out as one of the main points while he was reading the book. And of course, the complication of this boundary, of human and machine, I think it's already implicit in what he calls the 'master's definition'. So the master's definition, the official definition of technology, the way in which technology officially works (in both cases, blockchain and Artificial Intelligence), actually complicates this kind of boundary. In the book I generalize a lot.

There are specific examples, I talk about blockchain and specific uses of blockchain and some examples of Artificial Intelligence, but there is also an amount of generalization, especially when I am talking about Artificial Intelligence as a concept, because for me it becomes a concept. I learnt from media theorist and artist Salvatore Iaconesi, that in fact it's not very useful to generalize about technologies, in the same way in which it is not useful to generalize about cultures, about people, you know, when we talk about the human environment. So I had the feeling that I was also generalizing a bit in my book, and I think this comes from my intention to conceive Artificial Intelligence as a concept. The way in which Artificial Intelligence seems to work, when I wrote the book, it was already a demonstration of the fact that the human-machine boundaries had been put into question, first of all in the predictive modality of Artificial Intelligence, because the way in which Artificial Intelligence actually follows this kind of universal chronological line, this kind of universal chrono-epistemology, a universal way of thinking about time as a linear progressive development from past to future, seems to be shared by both the technical functioning of the technology and its cultural image. Going from past to future, so going from the past of the input data to the prediction of output models, the temporality of the technical functioning of Artificial Intelligence seems to correspond to the same linear development, from past to future, that is also part of its cultural image, when we think about Artificial Intelligence as a very futuristic technology, something that is already getting us into the future. Following this kind of concept of temporal evolution, of technological progress and development, seems to be therefore the common line, and the common way of working between human and machine, between the cultural image of the technology and its technical functioning. All this, following a postcolonial way of thinking, seemed to me to be the direct heritage of what I defined as a universalized chrono-epistemology, which is of course a way of thinking about time that has modern origins, from Newton and on. This modality of thinking about time, this way of thinking time as a universal and impersonal flow, is inherited by the technology in both its cultural and its technical aspects. About this, I also learnt a lot after writing the book, and in fact my research about technology and time, and about the automation of time and of the cognition of time, is continuing as I'm reading more and more of this postcolonial reading of the epistemology of time. For example I'd like to quote Rasheeda Philips, and the Black Quantum Futurism (that Iain was also mentioning):

reading the Black Quantum Futurism, the kind of universal chrono-epistemology that I was mentioning seems very much to resonate with their idea of the colonial clock, what they define as the classical teleology that always puts Occidental modernity as the rule and as the law, together with its presumed and imposed universality (2019). And the same kind of postcolonial reading, I am finding it in Sylvia Wynter, who was also mentioned in the previous discussions, as this universal cognition of time resonates with Sylvia Wynter's idea of the cultural laws that give rise to our consciousness (2015). Sylvia Wynter defines our subjective experience as being modelled around some autonomously functioning cultural laws. And of course the cognition of time and the way in which the cognition of time predominantly follows this kind of universal, linear, progressive development, is one of those important cultural laws followed by Artificial Intelligence, for example when we are told that the main aim of Artificial Intelligence would be to manage to simulate human consciousness, which also means the ideal of simulating human intelligence in all its aspects and in all its cognitive capacities, and so also in this particular (and not at all universal) way of knowing time. This kind of debate led me to go beyond this chronological objectivity that seems to direct and to guide research into Artificial Intelligence, and also mediatic representations of Artificial Intelligence, and even the technical working of Artificial Intelligence. Trying to go beyond this idea of the linear flow, as also Tiziana was mentioning, I encountered various cultural, postcolonial, philosophical readings during my journey together with Sophia, and one of the most important was Yuk Hui's concept of a monotechnological culture (which to me became a monochronological culture), to which, as Luciana was saying, Yuk Hui opposes the notion of technodiversity (which for me became chronodiversity), together with cosmotechnics. But in Yuk Hui's idea of cosmotechnics, for example, and in the way in which he talks about this differentiation between concepts of technology and between notions of time, the idea of diversity then started to sound very much focused around original localities and the particular conception of time and of technology in China. Of course it's important, in the way in which Yuk Hui talks about technology in China, to recognize the different implications of time and technology in different technocultural contexts, and this was also another point in the book. Sophia the robot, the protagonist of the book, is in fact a sort of Chinese product, or is in between different cultures, and so between different conceptions of time and technology, because she was made in collaboration between

Singularity.net, which is an Amsterdam based blockchain company, and Hanson Robotics, which is a robotics company based in Hong Kong. So to me Sophia herself defines this being as having an identity between different cultures, and so the idea of technology in China actually led me to go more in depth into Yuk Hui's argument. What also came out is the fact that thinking about the technocultural implications of time and technology in China brings us to recognize the fact that modernity itself (at least in the way in which Yuk Hui talks about it), and therefore a certain idea and a certain concept of time and technology, does not exist in China in the way in which we conceive it. What he says is that modernization is something that only occurred after the moment of encounter between different cultures, which is the moment of colonization. And this was another important point in discussing the cultural implications of what I call 'syncolonialism', of this following the universal arrow of time by both the technical functioning of technology and its cultural image.

Luciana asked about alien time, how this alien time can actually be thought avoiding the metaphysics of the subject always returning to itself. I have to say that another important concept that was also mentioned before, in the book, is the way in which Iranian philosopher Reza Negarestani talks about Artificial Intelligence algorithms as having this capacity to always adapt themselves, to actually respond: algorithms have this adaptability, this capacity to learn, this capacity to adapt themselves to what comes, to the environment basically. For Negarestani this idea corresponds to artificiality itself. So when we say Artificial Intelligence, at least in the way in which Negarestani defines it, to be artificial for intelligence means to have this capacity to adapt itself to the environment. The way in which I was trying to use this concept and this theory was exactly in order to understand how Artificial Intelligence as a concept and as a technology could provide us with these alien ways of thinking about time without following the arrow of time, so beyond the universal idea of a chronological epistemology. I have to say that, after writing the book, I am now exploring more than that, because the way in which the idea of artificiality comes from Negarestani's philosophy is very much tied to a sort of scientific way in which algorithms, and the logic of algorithms, will learn by themselves how to find the solution. I am finding it more interesting to work with the notion of 'recursion', and I think that this idea of 'recursion' is an interesting one in showing us these different, these alien modalities of

temporal cognition by technology. Recursion is a very technical word: recursivity is the mechanism that is behind the technology and its way of working, that is actually not simply technological. So recursivity: what does it mean? Recursivity is the basis of almost all programming languages, and therefore of Artificial Intelligence as well. But basically this way of working is actually a way of working, for example, in the human brain as well. So just to make an example of recursivity, we have to imagine how a telephone call can actually be interrupted all of a sudden: we are on the phone, and while we are speaking someone else calls us, so we put the first telephone call on hold, and we take the second one and start to talk to the second person; then the second call can be interrupted by a third one, and the process can go on ad infinitum. An algorithm can actually go on ad infinitum, putting on hold the first operation to undertake another one, and then another one... This is the way in which technology calls itself: every time the algorithm calls itself again to solve another problem and then another problem..., and then it's always able to go back, to resort to the initial call, to the initial operation, without forgetting anything, and to move on with time, towards its first initial goal. For me this kind of working is an example of a totally different idea, a totally alien idea of temporality, which is not just for example going back to the past instead of just going forward towards the future, or going back and forth, but it's a real suspension of time, it's a kind of suspension of the linear flow of time, and the way in which time is thought and cognized.

So I think that when Tiziana was saying that in this book there is an attempt at doing a phenomenology of machinic time, that's really what I would have liked to do, but I think that there was even more work to be done in terms of that. And with this other concept of recursion, it would be more interesting to explore what the technological cognition of time can actually be. So to respond to both, and also to Luciana's question, how to avoid the metaphysics of the returning subject: it is by recognizing this double mechanism, the way in which the algorithm always goes back to itself to undertake another operation, then stopping and moving forward. The mechanism of recursion, of recursivity, which, as I said before, is a technological mechanism but is also something which is part of the human brain: for example, some theorists define it as the mechanism that allows us to follow musical compositions, to follow music. Recursivity, or recursion, is a way in which time is suspended, or enters into a loop and

then gets out again, and it's a kind of technological mechanism that is not just technological. 'Mechanism' is not even the right word perhaps, it's a technical function that is not just technical but, again, it's physical, human, it's this kind of alien metaphysics of consciousness that you were asking about. Thank you.

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Notes

¹ More on Donald Knuth's Metafont can be found at <https://en.wikipedia.org/wiki/Metafont>.

² <https://www.youtube.com/watch?v=Ml9v3wHLuWI>

Iain Chambers has taught cultural, postcolonial and Mediterranean studies for many years at the University of Naples, Orientale, and is now an independent scholar and researcher. Amongst his recent publications are *Postcolonial Interruptions, Unauthorised Modernities* (2017), *Mediterraneo Blues. Musiche, malinconia postcoloniale, pensieri marittimi* (2020), 'It's About Time: some notes on quantum history' (2023), and, with Marta Cariello, *The Mediterranean Question* (2019), and 'At History's Edge: The Mediterranean Question' (2022).

Email: i.chambers@icloud.com

Geoff Cox is Professor of Art and Computational Culture at London South Bank University, co-Director of the Centre for the Study of the Networked Image (CSNI) and adjunct at Aarhus University. With Jacob Lund, he is co-editor of The Contemporary Condition book series published by Sternberg Press (since 2016), and with Joasia Krysa, co-editor of the open access DATA browser book series published by Open Humanities Press (since 2018, earlier with Autonomedia). With Christian

Ulrik Andersen, he co-runs a yearly workshop/publication in collaboration with transmediale festival in Berlin (since 2012), and is co-editor of the associated open access online journal APRJA. Most recent book is *Live Coding: A User's Manual*, with Alan Blackwell, Emma Cocker, Thor Magnusson and Alex McLean, published by MIT Press in 2022.

Email: geoffcox@lsbu.ac.uk

Luciana Parisi is a Professor at the Program in Literature and core faculty in the Graduate Program of Computational Media Art and Culture at Duke University. She was a member of the CCRU (Cybernetic Culture Research Unit) and is currently a co-founding member of CCB (Critical Computation Bureau) and co-organised the Symposium *Recursive Colonialism, Speculative Computation and Artificial Intelligence* (<https://recursivecolonialism.com>; <https://www.e-flux.com/journal/123/438467/editorial-dialogues-on-recursive-colonialisms-speculative-computation-and-the-techno-social/>). Her work addresses cybernetics and computation, information and evolutionary theories, questions of sex and nature, matter and thought in the context of the technocapitalist investments in biotechnologies and artificial intelligence. Her philosophical writings on evolutionary theory, gender and biotechnology are published in the book *Abstract Sex: Philosophy, Biotechnology and the Mutations of Desire* (2004, Continuum Press). She has published extensively in the field of Media Philosophy, on the informational critique of mediation and the artificial programming of perception and memory. Her research on computation and aesthetics in the context of digital architecture and design is gathered in the monograph *Contagious Architecture. Computation, Aesthetics and Space* (2013 MIT Press). She has published on alternative models of reason, logos and ratio in the context of radical feminist, queer and black studies critique of modern metaphysics and is now writing a monograph *Automating Philosophy: Instrumentality, Critique, and the Alien*.

Email: l.parsi@duke.edu

Stamatia Portanova is a Research Fellow in Sociology of Culture and Communication, at the Department of Human and Social Sciences, Università degli Studi di Napoli "L'Orientale" (Naples), where she is also the Director of the CRiTT (Interuniversity Research Centre on Transnational Technocultures). Her research focuses on digital culture and philosophy, with a specific interest for the impact of automation and AI on socio-cultural dynamics and thought processes, and on perceptions and cognitions of time. She is the author of *Whose Time Is It? Asocial Robots, Syncholonialism and Artificial Chronological Intelligence* (2021, Sternberg Press, 'The Contemporary Condition' series) and of *Moving without a Body. Digital Philosophy and Choreographic Thoughts* (2013, MIT Press, 'Technologies of Lived Abstraction' series), as well as of several articles published in edited collections and journals such as *AI and Society*, *Body and Society*, *Computational Culture*, *Space and Culture*.

Email: sportanova@unior.it

Tiziana Terranova is Professor in Cultural Studies and Digital Media in the Dipartimento di Scienze Umane e Sociali at the Università di Napoli “L’Orientale”, Italy. Her research interests concern the general intersection between science, technology, communication and culture from the perspective of critical theory and cultural studies. She is the author of *Network Culture: Politics for the Information Age* (Pluto Press, 2004); *After the Internet: Digital Networks between Capital and the Common* (Semiotexte/MIT Press, 2022) and the forthcoming *Network Social: on the Return of the Social in the Post-Digital Age* (Minnesota University Press). She is a member of the editorial boards of the journals *Theory, Culture and Society* (Sage), *Media Theory* (<https://mediatheoryjournal.org/>), *Subjectivity* (Palgrave), and *Studi Culturali* (Il Mulino). She is a member of the Centre for Postcolonial and Gender Studies at L’Orientale, and co-founder of the Critical Computation Bureau (CCB), and of the Centro di Ricerca Interuniversitario sulle Tecnoculture Transnazionali (CRiTT)

Email: terranovaunior@gmail.com