Introduction:
Philosophy after Automation?

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> *[I]t is astonishing that something like an animal body should even be possible.*
> *—Kant, "The Only Possible Argument in Support of a Demonstration of the Existence of God"*

> *The end of philosophy proves to be the triumph of the manipulable arrangement of a scientific-technological world and of the social order proper to this world. The end of philosophy means: the beginning of the world-civilization based upon Western European thinking.—Heidegger, "The End of Philosophy and the Task of Thinking"*

> *It might very well still take a considerable time to recognize that the 'organism' and the 'organic' present themselves as the mechanistic-technological 'triumph' of modernity over the domain of growth, 'nature.'*
> *—Heidegger, GA94 Ponderings XII–X*

The title of this special issue, "Philosophy after Automation," is first of all an attempt to reflect on the possibility of philosophy after its completion claimed by Martin Heidegger. "Philosophy after automation" is presented here as both a question and an imperative. It serves as invitation to ask what is the place of philosophy in relation to automation, especially that of our time—the prefix *auto-* already signifies an auto-position and auto-nomy; at the same time, it demands a deepened reflection on automation as its own condition of existence. The term "after" signifies a completion, an end. This completion was already pronounced by Martin Heidegger in his 1964 essay "The End of Philosophy and the Task of Thinking," in which Heidegger alludes to thinking instead of philosophy as the other beginning (*anderer Anfang*). Heidegger reads the history of Western philosophy as a history of techno-scientific thought, and claims that the task of Western philosophy—which has its begin-

ning in the Athenian thought of Plato and Aristotle—is already completed in cybernetics. It is imperative for Heidegger to look for the other beginning after the end of philosophy.

Funnily enough, this "universal discipline" known as cybernetics has by now ceased to exist, since it has already been absorbed by both new and old disciplines such as computer science, bioinformatics, etc., while philosophy departments continue to survive. The end of philosophy seems yet to eventuate. Today, to re-pose Heidegger's question is to inquire into, firstly, the meaning of philosophy's end announced 60 years ago, and secondly, its task and possibility after this end. To speak about "philosophy after automation," we must first of all clarify the legitimacy of this question and the notion of automation. We speak about legiti-macy because this question demands an unconventional reading of the history of Western philosophy articulated in terms of its relation to automatism. This close relation between philosophy and automatism is not yet fully exposed and has not yet achieved the clarity that it merits.

Bernard Stiegler, who contributed to this special issue and who passed away in August 2020, attempted throughout his life to reground technology as first philosophy. For Stiegler, all other questions in philosophy are conditioned by both the "retentional finitude" of human beings and technology as the support of memory (i.e. artificial memory, or in Stiegler's own term "tertiary retention," extending Husserl's concepts of primary and secondary retention). Together with Heidegger's assertion of cybernetics marking the completion or the end of philosophy, Stiegler's analysis of the history of philosophy is the departing point for us, to read philosophy with and according to its technological condition. This "ontological apology" for technology has been the spirit of the twentieth century and has extended today to other disciplines such as Science and Technology Studies and Media Studies. And it remains our task to understand its significance today, as well as to go beyond this gesture: in the case of this special issue, it will neces-sitate a reassessment of the meaning of cybernetics in both history of technology and history of philosophy.

Automation is close to autonomy, for the latter could be understood as the auto-determination of reason. Automation has often been associated with iso-lated automatic machines, like those we see in Charlie Chaplin's *Modern Times* (1936); this is also the reason for which, in Gilbert Simondon's 1958 work, *On the Mode of Existence of Technical Objects* (2017), automation is the lowest level of technical perfection. A higher level of technical perfection is reflexivity, which he identified with both cybernetics and philosophy. Indeed, after cybernetics the relation between automation and autonomy is much closer, if not an identity. Therefore, our questioning is probably closer to that of Simondon, who asks what philosophy—which could be characterized by its reflexivity—can be when, after cybernetics, machines also become reflexive.[1]

This questioning is based on the hypothesis that modern philosophy could be deemed largely as the effort to model the autonomy of reason on an organismic operation functioning according to reciprocal causalities, of which cybernetics is an attempt. This organismic philosophy is one that violently confronts mechanistic philosophy and its later incarnation in industrialism. This sharp distinction we are drawing between mechanism and organism was already present in the Cambridge Platonist School of the seventeenth century (including theologians and philosophers like Benjamin Whichcote, Henry More, and Ralph Cudworth[2]). These thinkers have also influenced Leibniz's organicism, largely reflected in his later work, *Monadology*. It can also be identified with Spinoza's concept of immanent causality, whose traces could be found in Kant, Fichte, Schelling, Hegel. This organismic thinking continues until the twentieth century and has been articulated in different ways in Bergson, Plessner, Whitehead and Deleuze, among many others.[3] Historians of philosophy may dispute this reading since it seems to suggest a reduction of the singularity of each thinker by submitting them under some rubric called organicism. For sure, it is not our purpose at all to claim that each of the above-mentioned philosophers consciously take organicism as the departure of his own trajectory of thought; we simply want to state that the irreducibility between the mechanical and the organic has been working in the background of modern philosophy and its postulation of reason; that it has been increasingly visible after the industrial revolution of the late eighteenth century; and that a generalized epistemology modelled on organism has set the stage for philosophy since modern philosophy.

The organismic philosophy is most obvious in the work of Kant[4] and the post-Kantians,[5] where a dichotomy between mechanism and organism is set up as an invitation to overcome Cartesian dualism, that is, to reconcile realism and idealism. The influence of the concept of organism from natural science is evident for these thinkers. We can only state in passing that it is the base of Kant's *Critique of Judgement*, that it is omnipresent in Schelling's early philosophy of nature and continues in his later work on human freedom and art, and that organicism had a significant shaping effect in Hegel's formulation of his dialectical logic. This tendency continues in the twentieth century with the rise of different schools dedicated more explicitly to the question of organism: philosophy of symbols, philosophy of life, philosophy of organism and philosophy of biology, etc.

To reiterate, the irreducibility between mechanism and organism is fundamental to modern and contemporary philosophy, and, moreover, operates implicitly in the critique of the "iron cage" of capitalism, alienated mechanized labour, and more recently, of biopolitics. To put it in a more schematic way, mechanism was the *condition of philosophizing* characteristic of early modern European thought. By *condition of philosophizing*, what is meant is that thinking has to assimilate itself to this condition and work in accordance with it. After Kant,[6] for philosophy to

exist, it will have to become organic. However, it remains our task to analyse the historical relation between philosophy and the organic, and also to question this condition of philosophizing in light of the technology of automation. In what follows, we will take a closer look at this condition of philosophizing since Kant, before we go into the significance of cybernetics in relation to this Kantian legacy.

§1. Kant and the Organic Condition of Philosophizing

Kant's understanding of the organic is largely spelled out in the *Critique of Judgement*. It is divided into two parts: "Aesthetic Judgement," which concerns the beautiful and the sublime; and "Teleological Judgement," which concerns organism and natural end. These two judgements rest on a specific operation and structure, namely reflective judgement. A reflective judgement has to be distinguished from a determinate judgement, which is the foundation of the *Critique of Pure Reason*. A determinant judgement, following the constitutive principle, subsumes the particular to universal laws, like the subordination of sense data to the twelve categories of the understanding. A reflective judgement is fundamentally different, since it follows the regulative principle. It does not subsume the particular to the universal, but rather attempts to derive its own rules from the particular on its way towards the universal. A reflective judgement is therefore open to contingency, which is necessary for its own determination by going back to itself. This circular movement is not mere repetition (A-B-C-A), but rather what I call recursive; it designates a new operation and a new structure (A-B-C-A').

A determinate judgement is mechanical. Mechanical has to be understood in terms of linear causality. A linear causality suggests that when there is an effect, it must be preceded by a cause, which is distinct from the effect. A linear causality is finite, otherwise it would merit what Hegel calls bad infinity. As Aristotle already emphasized in Book A of *Metaphysics*, "those who maintain the infinite series destroy the good without knowing it. Yet no one would try to do anything if he were not going to come to a limit."[7] If the series is infinite, then there is no *telos*, and in so far as there is no *telos*, there is no Good. Therefore, Aristotle demands a prime mover—an unconditional cause, a cause that is not the effect of another cause. This first cause already anticipates the final cause, as condition of its possibility and impossibility. This linearity characterizes what came to be called mechanism, and it was central to Cartesian mechanism.

For Descartes, mechanism is a monism that governs all beings. To recall, in the "Second Meditation" of his *Meditations on First Philosophy*, Descartes raises an interesting question. He asks if the people passing by his window are not automata powered by springs and wearing coats and hats.[8] In this passage, the key argument concerns the difference between perceiving and judging, but it is really,

therefore, a reiteration that the main difference between a human and a robot lies in the mind and not the body. In order to give life to the mechanical body, Descartes proposes a soul sitting in the pineal gland in the brain that is able to give commands to the mechanical body. This linear causality was best illustrated with a spring-driven clock, in which the movement of one gear leads to another, and finally sets the whole complex into motion. The metaphor of the clock could be found in Descartes, Huygens, Boyle and Hobbes, among many others. We may recall here what Boyle said against Henry More:

> If I had been with those Jesuits, that are said to have presented the first watch to the King of China, who took it to be a living Creature, I should have thought I had fairly accounted for it, if, by the shape, size, motion, &c. of the Spring-wheels, balance and other parts of the watch I had shewn, that an Engine of such a structure would necessarily mark the hours, though I could not have brought an argument to convince the Chinese-Monarch, that it was not endowed with Life.[9]

In Boyle's statement, there is reluctance to accept an absolute distinction between mechanism and organism. This denial of an absolute difference between mechanism and organism was firmly rejected later, on the grounds, as nicely summarized by Georges Canguilhem, that mechanism fails to explain life, since it attempts to "completely explain life without life."[10] Cartesian mechanism was countered by the Spinozist immanent cause, which has to be distinguished from a transitive cause, meaning a linear and external causality. An immanent causation means a self-causation. The prime mover or the unmoved mover of Aristotle is a figure of linear causality, since if causes are limited, and if one can trace upstream, then there must be a first cause. However, in the non-linear causation—here we associate with what Kant calls reflective judgement—the prime mover can only be understood as the totality of the being itself, which is therefore immanent. In contrast to the clock, an organism demonstrates this new form of operation and structure, which cannot be exhausted by mechanical causality. The Kant of the pre-critical period wrote, "[I]t is astonishing that something like an animal body should even be possible. And even if I could fully understand all its springs and pipes, all its nerve ducts and levers, its entire mechanical organization, I should still continue to be amazed."[11]

How can something like an animal body be possible? The irreducibility between the mechanical and the organic or the teleological leads to two major interpretations after Kant: organicism, in biology (more precisely embryology) and technology (a mechano-organicism); and organology, associated with Henri Bergson, Georges Canguilhem, Gilbert Simondon, and Bernard Stiegler.[12] For Kant, the clearest definition of the organic form can be found in §64 of the *Critique of Judgment*, where he defines the organic being as follows: "a thing exists as a natural end if it is (though in a double sense) both cause and effect of itself."[13]

Kant then provides the example of a tree, highlighting three elements that define it as an organic being. Firstly, the tree reproduces itself according to its genus, meaning that it produces another tree; secondly, the tree produces itself as an individual, absorbing energy from the environment and turning them into nutrients to sustain its life; thirdly, different parts of the tree establish reciprocal relations and thus constitute the whole—as Kant writes, the "preservation of one part is reciprocally dependent on the preservation of the other parts." The concept of the organic being consists in the reciprocal relations between parts and the whole and the capacity for reproduction. It also affirms the two important categories of relation: namely, community (*Gemeinschaft*) and reciprocity (*Wechselwirkung*). In other words, they constitute a primary form of self-organization. As Kant writes: "[N]ature, on the contrary, organizes itself, and does so in each species of its organized products—following a single pattern, certainly, as to general features, but nevertheless admitting deviations calculated to secure self-preservation under particular circumstances."[14]

These two concepts, community and reciprocity, also characterize Kant's political philosophy, which we can vaguely identify with the help of Hannah Arendt in her *Lectures on Kant's Political Philosophy*. What grounds this political ideal is nature, "the great artist . . . the eventual 'guarantee of perpetual peace.'"[15] We recall what Kant says in *Idea for a Universal History with a Cosmopolitan Aim*: that "One can regard the history of the human species in the large as the completion of a hidden plan of nature (*Vollziehung eines verborgenen Plans der Natur*)."[16] If the history of the human species involves the completion of a hidden plan of nature, it is because this plan is teleological and organic, ensuring community and reciprocity through a republican constitution. Therefore, we see that Kant's notion of the organic is not simply a mode of operation, but rather that which conditions all territories of philosophical thinking: practical reason, aesthetic judgement, and cosmopolitanism. This short excursus allows us to see how the concept of the organic, which came largely from the naturalists of the eighteenth century, not only provided a new form of operation and structure, but also allowed philosophy to identify a new condition for itself. In other words, by rejecting the totalizing explanatory power of mechanism and its later dominance in industrialism, philosophy embraces the organic. This is why we see in the post-Kantians, notably Fichte, Schelling and Hegel, that both the mechanism of reflection and the concept of the organic are central to their philosophical projects. We will not be able to go into Schelling's philosophy of nature or Hegel's organismic logic (to be distinguished from the organicism of nature, whose notion is too feeble). Hopefully this is enough to clarify our first claim that the organic was a new condition of philosophizing after Kant's *Critique of Judgment*.

§2. Organism after Cybernetics

What is the status of the organic or organicism today,[17] in view of technological automation, which has "becoming organic" and "moral autonomy" on its agenda? We know that organicism as a philosophical thought informed by embryology was developed in the twentieth century by various philosophers, notably Alfred North Whitehead, as well as biologists who identified themselves with him, such as Ludwig von Bertalanffy, Joseph Woodger and Joseph Needham. Indeed, we may be able to associate different schools under this condition of philosophizing: organicism/embryology, systems theory, Gödel's recursive function and the Turing machine, and cybernetics. Organicism wants to go beyond both mechanism and vitalism. It was a remedy to the catastrophes produced by industrialism in the nineteenth century, as Bertalanffy writes in his *General System Theory*: "The mechanistic world view, taking the play of physical particles as ultimate reality, found its expression in a civilization which glorifies physical technology that has led eventually to the catastrophes of our time. Possibly the model of the world as a great organization can help to reinforce the sense of reverence for the living which we have almost lost in the last sanguinary decades of human history."[18]

In the eighteenth century, the opposition between machine and organism remained conceptual; in the nineteenth century, the triumph of mechanism in the process of industrialization amplified the tension, and led to a political romanticism of reconciling steel and nature. However, is it still the case today? Does organicism necessarily stand against mechanism as was the case in the eighteenth century? In view of the triumph of industrial technologies, many critics today want to oppose technological development with organicism of one form or another, as if the organic is the safe backyard and as if the technology that we are talking about today is just an updated form of eighteenth-century mechanism. This critique based on the opposition between organism and mechanism often leads to a fantasy that aims towards a *political naturalism*, which sees the organic as the ideal model for art, philosophy and politics, as was the case for the eighteenth-century Romantics. It becomes increasingly so with the ecological crisis and the urgency of rethinking the co-existence of multispecies, which may be read as a return of the treaty on perpetual peace, not between the nation states, but between species. An unsophisticated reflection may easily lead to a facile decision between annihilation of nature and annihilation of technology. It seems that to inquire into "philosophy after automation," we must re-examine these oppositions—organic vs. mechanical, political naturalism vs. digital vitalism, etc., in order to understand what the new condition of philosophizing today is.

Let us ponder Heidegger's claim in the notorious *Black Notebooks* that we quoted in the opening of this text. What Heidegger says here has to be thought against the backdrop of the mechanism and organism debate of the eighteenth cen-

tury. Heidegger wants to point out that such an opposition between the mechanical and the organic was already obsolete, and therefore the organic is no longer an ideal of the humanity and perpetual peace. What made Heidegger come to this conclusion and what does it mean for us today? We must go back to what we said at the beginning of this introduction: Heidegger's claim that cybernetics means both the end and the accomplishment of Western philosophy and metaphysics. Instead of simply understanding it as a claim stemming from his geopolitical and philosophical quest for the question of Being, we have to align it with our own quest concerning a new condition of philosophizing. In order to understand this claim, we must look into cybernetics, especially Norbert Wiener's *Cybernetics: Or Control and Communication in Man and Animal*, published in 1948.[19]

The first chapter of Wiener's *Cybernetics* was titled "Newtonian and Bergsonian time." Newtonian motion is mechanist, and time-symmetric, hence reversible, whereas Bergsonian time is biological, creative and irreversible. It is not until the second law of thermodynamics proposed by the French physicist Sadi Carnot in 1824 (almost a century after Newton's death, 1727) that we recognize the "arrow of time," and that the entropy of the system increases with time in an irreversible way. Already in his first book, *Essai sur les données immédiates de la conscience* (1889), Bergson launched a fierce attack on the way time is conceptualized in Western science and philosophy: time is understood in terms of space, for example, intervals which can be represented in space, and this conceptualization is therefore itself timeless. It is homogenous, like the intervals marked on a clock. In contrast to this view of time as extension ordered in spatial terms, Bergson argues that time contains heterogeneity or qualitative multiplicity in organic forms. Time is force which is singular in every instant, like the Heraclitean river, it does not repeat itself twice like a mechanical clock. Indeed, mechanical or linear causality does not exist in duration. Bergsonian time provides a new way to understand human consciousness and experience.

These differences between Newtonian time and Bergsonian time define the boundary between physics and biology, machine and organism. The task of cybernetics was to show that, with advancements in physics—especially statistical mechanics and quantum mechanics—it is possible to employ notions of feedback and information to construct a cybernetic machine that breaks the boundary between machine and organism. Therefore, towards the end of the chapter, Wiener claims that "the modern automation exists in the same sort of Bergsonian time as the living organism; and hence there is no reason in Bergson's considerations why the essential mode of functioning of the living organism should not be the same as that of the automation of this type. . . . In fact, the whole mechanist-vitalist controversy has been relegated to the limbo of badly posed questions."[20]

Vitalism, as we know, was associated with Hans Driesch, Bergson and others, but it was often reproached by biologists and mathematicians of the organismic

school on the grounds that notions such as entelechy and *élan vital* are mystical. The overcoming of the mechanist-vitalist controversy does not mean that a machine is now vitalist, but rather that this duality has been overcome by an organicism of which cybernetics is its mechanical realization. In Wiener's conceptualization, when we grasp a glass of water and bring it towards our mouth, this involves multiple feedback loops and adjustments according to the information evaluated which in turn measures the level of organization. Or in other words, Wiener is claiming that Bergson's vitalist definition of organism can no longer differentiate itself from the design of a cybernetic machine. Wiener's claim inaugurates what we may call *digital vitalism* today. It holds the view that all forms of being could be reduced to digital algorithms and that one can produce an algorithm which knows us better than we know ourselves.

Feedback here means *reflection*, a circularity between a being and its environment, a nonlinear movement of self-adjustment toward a purpose or *telos* that defines the whole. This association between feedback and reflection is not simply analogical: although we related this to Kant earlier, we should also recall, as Gilbert Simondon already remarked in his article "cybernetics and epistemology," written in the 1960s, that it was only in the *Critique of Judgement* that Kant was able to approach cybernetic questions.[21] Wiener refers to the first feedback system as the "governor"—a design used to automatically open and close the valve according to the speed of the centrifugal movement of a pendulum—in James Watt's steam engine. A more contemporary example is homeostasis, a concept described by the physiologist Claude Bernard and a term later coined by W. B. Cannon. Bernard, in his 1865 *Introduction à l'étude de la médecine expérimentale*, writes that "all the vital mechanisms, however varied they may be, have only one object, that of preserving constant the conditions of life in the internal environment [*milieu intérieur*]."[22] Homeostasis is a mechanism that is able to keep a system within a certain range of constants: for example, temperature, or the amount of potassium in the bodily liquid. Homeostasis is also used by the British cybernetician W. Ross Ashby to characterize life. Feedback here replaces the reflection of the monads and prompts Wiener to reject notions such as "life," "vitalism," and "soul": "It is my thesis that the physical functioning of the living individual and the operation of some of the newer communication machines are precisely parallel in their analogous attempts to control entropy through feedback."[23]

This analogy leads Wiener to associate both organism and machine by a common *telos*, the resistance against "the general tendency for the increase of entropy." For Wiener, the concept of feedback is not limited to technical objects and organisms; he also extends it to economic analysis and other social phenomena. Commenting on what he calls "long time feedback," he gives the example of Chinese idolatry, according to which the mandate of heaven is correlated to the destiny of the emperor and the dynasty—the suffering of the people due to wars

and famines is an indicator that the emperor or the dynasty has lost the mandate of heaven, and therefore that it is destined to fall. Wiener emphasizes that this involves a kind of *feedback*. With Wiener's formulation, one can see feedback everywhere; it constitutes a new epistemology.

§3. Thinking beyond Planetarization

As Heidegger claims, a considerable amount of time might well be needed in order to recognize that the "organism" and the "organic" present themselves as the mechanistic-*technological* "triumph" of modernity. Heidegger's verdict remains to be rethought carefully. However, should we not already see a parallel between this mechanical-technological triumph of the organic and the end of philosophy? By seeing it in this way, can we not understand more concretely what Heidegger is really proposing when he suggests that we take thinking beyond philosophy?

It is not simply an announcement of the end of philosophy, but rather that a new condition of philosophizing needs to be identified. In the eighteenth century, this is based on the recognition that the organic condition of philosophizing was posed as a counter-force to mechanism and symbolizes the highest form of organization of humanity and history. Parallel to the organic condition of philosophizing, there also occurred the industrial revolutions as the intensification of mechanism. In the twentieth century, philosophers, such as Alfred North Whitehead and Lewis Mumford, and sociologists like Georges Friedmann among many others, aspired to the organic as a remedy to mechanism and industrialism, to what Marx describes as alienation. Marx's critique of industrial machines was based on an understanding of the linear causal model—which largely accounts for a double alienation (according to Simondon): firstly, mechanization of the worker's body and alienation of his soul; secondly, alienation of machines because they are considered as mere slaves. Georges Friedmann observes from his sociological standpoint the possibility and practice of adapting machines to human rhythms to attain a physiological optimum.[24] The improvements that Friedmann anticipated have already arrived via human-computer interface research and new concepts of product design; however, alienation is far from being overcome. And indeed, the human-machine relation has progressed in a radical direction far beyond Friedmann's imagination. The cybernetic model anticipates the transhumanist proposal for human-machine hybridity and technological singularity. If there had been aspirations toward a new organization of work (as in the cases of Friedmann and Simondon), it was because machines and tools were understood as organized inorganic matter, meaning they could be reintegrated through the body. However, today, machines cease to be *organized inorganic*, and are instead becoming a gigantic system, for example Google, or the Social Credit System, which we might want to call *organizing inorganic*. The resurgence of organismic thinking seems

to have been absorbed by cybernetics, and pursued via current developments in AI and machine learning. The question of alienation has yet to be re-evaluated.

To ask about philosophy after automation is also to ask what comes after the organic as the condition of philosophy; or in the words of Heidegger, a condition under which new thinking is necessary. However, it does not mean that we want to renounce organicism: on the contrary, we would like to clarify its position today in order to inquire into a new condition and the new possibility of taking action. This condition also manifests in different aspects of our social and political life, which may serve the entry points for us to reflect upon. To clarify this statement, we want to briefly summarize what has been said and its broad implications in three points (though not limited to):

Firstly, the digital recursive machines that we live with today are fundamentally different from the analogue mechanistic machines that we associate with the seventeenth and eighteenth centuries. However, it is neither simply an enterprise of technology nor a proof of materialism, as we tried to show above. We are living among recursive machines that are exhibiting more and more an organismic structure and operation; they are like what Simondon describes as becoming organic or becoming natural objects. But beyond Simondon's own categorization of technical objects in terms of elements, individuals and ensembles, we are also bearing witness to the formation of what Jacques Ellul calls autonomous and totalizing technical systems. If tools have been considered as organized inorganic, these systems are organizing inorganic. This seems self-evident today when we see large digital platforms and also digital urbanism, notably the vision of smart cities.

Secondly, the organismic thinking assimilated by the systems theory of, for example, Bertalanffy, Niklas Luhmann, Heinz von Foerster and others is no longer a conceptual tool of analysis but rather a technological reality. It has been realized in material terms through different technological dispositifs. This is also what we might call an *inorganic organicity*, which defines both resilience and control. For sure we can still talk about the cybernetics of cybernetics, without being able to escape the endless looping. Indeed, the modern division of disciplines obscures the intimate relation between philosophical thinking and technological thinking.

Thirdly, the organizing inorganic is forming gigantic organisms on a *planetary scale*—which should be contrasted with Schelling's characterization of nature as general organism, James Hutton's consideration of the earth system as super-organism, and Niklas Luhmann's general physics—bringing to realization what Pierre Teilhard de Chardin calls the *Noosphere*. Teilhard claims that with the realization of the noosphere, we will be able to develop a "super-brain."[25] This super-brain is not fundamentally different from what was called super-intelligence in the 1990s or *homo deus* today. In the same trajectory, the vision of the State moved from a Hobbesian mechanism to a Hegelian organic state, and now to a mechano-organismic digitalized system modulated by a super-intelligence. Geo-

politics today is characterized by the competition towards such super-intelligence, or what is known as technological singularity.

"Philosophy after automation" is an inquiry into the new condition of philosophizing today. If, in the eighteenth century, thinking had to become organic, today it is no longer enough to think in this way. Instead, one will have to first of all think such organicity together *with* machines but also *beyond* this organicity—to go beyond is to see its limits. Therefore, today it is insufficient, if not philosophically naïve, either to celebrate how digital technology simulates organic life—which we call *digital vitalism*—or to aspire to the organic notion of nature as a solution to the technological catastrophes that we see today, which we call *political naturalism*. We must push beyond this opposition between the organic and the mechanic which still presents itself as either a dominant form of the attack against technology or, by contrast, a naïve defence of machines.

Thinking has yet to decide to move toward what is not yet closed, or to embrace the auto-determination of reason. This indecisiveness means that it will have to take risks, because the task of thinking cannot escape or ignore its own condition. Rather, thinking should orient itself towards machines, meaning to orient within the danger in order to turn it toward the Open. Open in two senses, firstly that which is not yet determined or anticipated, and secondly, that which cannot be reduced to a definite answer. And precisely because of this, thinking has to take risks. As Heidegger says while commenting on the poetry of Rilke: "It may be that any other salvation than that which comes from *where the* danger is, is still within the unholy [*Unheil*/ catastrophe]."[26] Thinking must think beyond the totalizing power of the organic—which Heidegger calls *Gestell*, the essence of modern technology. It means that thinking will have to see the limit of the organic as well as the limit of reason's aspiration for the organic; while at the same time, recognizing the planetarization of modern technology as its own condition. We will have to move from a generalized notion of reason to a *planetary thinking*. This planetary thinking should not be mistaken as the expression of technological planetarization, but rather it is that which thinks and points to an opening and transformation of the latter, firstly beyond a single history of technology (and philosophy) and secondly beyond its totalizing tendency.

This special issue, "Philosophy after Automation," is in this way an invitation to reflect collectively. Our inquiry is only at its very beginnings. Instead of presenting any definite answers, we want to open the debate. Therefore, we wanted to cover as many areas of expertise and voices as possible, and to include thinkers from different generations, geographical areas and specializations. To be sure, it is far from being complete, but we sincerely hope that the discussion will extend beyond this special issue.

This special issue is divided into two parts. Part I consists of essays in which the authors responded to the call for papers circulated in early 2019.

Jean-Luc Nancy generously responded to the call during his illness. He questioned if "philosophy after automation" is a question or a theme. He shows that, on the one hand, Western philosophy could be seen as a history toward this "autonomy" or "autodetermination." On the other hand, since Heidegger, and via Derrida, Merleau-Ponty and others, there unfolds an effort to show the impossibility of such an absolute autonomy. Nancy rejects the possibility of an auto-alteration and auto-expansion, since ecological problems and progress are twins of the desire for autonomy. This alteration will have to come from praxis instead of philosophical choice or decision. Bernard Stiegler, for his part, calls for a program of de-automatization as a response to the end of philosophy but also as a response to the epoch of disindividuation, in which the exploitation of libidinal energy accelerates and intensifies. Stiegler suggests turning a moment of disindividuation into a promise of individuation, as a collective protention, in order to produce a "quantum leap of individuation," something exemplified by his territorial experiment in France that attempts to create a new political economy.

Michał Krzykawski's essay follows in the same vein as Stiegler's, elaborating a practice of translation as the maintenance of idiodiversity. He traces the history of automated translation and argues that the question is not to reject automated translation, but rather to determine "whether these technologies can be reappropriated for the purpose of preservation and revalorisation of translation and, more generally, as a conveyor of noodiversity."[27] Anna Longo articulates the question of diversity in a different way, elegantly tracing and describing a tendency to do philosophy through induction, which could be called "automation of philosophy." She shows that automated philosophy cannot be considered as a production of knowledge, but a prediction of philosophical beliefs in the same way as Amazon predicts the books you would like to read. In contrast to this generalized inductive way of doing philosophy, no matter whether it is objective or subjective, she proposes, following Lyotard, that it is necessary to move beyond this game, either by setting new rules for the game or inventing new games.

Babette Babich, in her article, distances herself from the postphenomenological approach to technology, and draws on Günther Anders and Friedrich Nietzsche to reflect on the process of digitalization, which is undetachable from the necropolitical question of climate change and its technological scotosis: "we will not stop *until* we have set disaster in motion." Howard Caygill's essay seems to be a rather witty response to Babich's. He shows the contingent side of technology, which cannot be fully captured by the necessity of thinking itself. He shows that the picture of the earth from the moon that Heidegger saw in 1966 was actually a processed one created by NASA. This image, which affirms what Heidegger calls planetarization, is in fact something contingent, and the technology that promises such planetarization is rough and imprecise. In a certain sense, the claim of

modern technology as the end of philosophy overlooks the fragility of technology itself, but also the diversity of technology beyond its Western European exemplars.

Yuk Hui's article follows this line of thought by articulating what he calls technodiverisity in artificial intelligence. He attempts to expose the limit of artificial intelligence, which, according to him, is paradoxically without limit. He suggests that the current understanding of intelligence is only one particular way of modelling intelligence, as Marvin Minsky already declared. This article revisits the debate between Minsky and Hubert Dreyfus and repositions them in terms of an opposition between mechanism and organism, in order to expose the limit of Dreyfus's Heideggerian critique. He suggests reflecting on the relation between noodiversity and technodiversity, and on how different concepts of intelligence could be thought by introducing the Chinese philosopher Mou Zongsan's interpretation of Kant's intellectual intuition. In her article, Katerina Kolozova also takes up the mechanism and organism debate and repositions them according to what she calls a "radical dyad of the non-human," inspired by François Laurelle's non-philosophy and Marx's "third party perspective." She speculatively demonstrates how the thinking of the radical dyad between the physical and the real, mechanicism and organism, offers us a non-humanist perspective to reflect on the future of technology but also of philosophy. Her materialist non-anthropocentric view is neither optimistic nor pessimistic. It aims to offer philosophy a chance not to fall into postmodern extinctionism or romantic existentialism.

Part II consists of three interviews that cover some areas that remain unaddressed by the articles in Part I. The interview with philosopher of technology Pieter Lemmens presents the actuality and landscape of "philosophy of technology," and his critique of the ethical turn in the discipline. The interview with the Brazilian anthropologist Eduardo Viveiros de Castro discusses his concept of multinaturalism and what he calls strategic primitivism, as a strategy for living with the Anthropocene. The interview with the Japanese postmodern philosopher Hiroki Azuma addresses the development of technology and philosophy in postmodern Japan, describing the phenomenon of a *homo animalis*, animals equipped with high technologies.

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Notes

1. Simondon, "Technical Mentality," 18.
2. Cassirer, *The Philosophy of the Enlightenment*, 82–83.
3. Joseph Needham exhausts the list up to his time, "Philosophically the greatest representative of this trend is undoubtedly Whitehead, but in its various ways, with varying acceptability of statement, it runs through all modern investigations in the methodology and the world picture of the natural sciences—the numerous and remarkable developments of field physics, the biological formulations which have put an end to the sterile strife between mechanism and vitalism while avoiding the obscurantism of the earlier 'Ganzheit' schools, the Gestalt psychology of Kohler; then on the philosophical level the emergent evolutionism of Lloyd Morgan and S. Alexander, the holism of Smuts, the realism of Sellars, and last but by no means least the dialectical materialism (with its levels of organization) of Engels, Marx and their successors. Now if this thread is traced backwards, it leads through Hegel, Lotze, Schelling and Herder to Leibniz (as Whitehead constantly recognized), and then it seems to disappear" (Needham, *Science and Civilization in China*, vol. 2, pp. 291–92.
4. See Mensch, *Kant's Organicism: Epigenesis and the Development of Critical Philosophy*.
5. See Matthews, *Schelling's Organic Form of Philosophy*, as well as Ng, *Hegel's Concept of Life*.
6. One can push it earlier as Needham did (see footnote 3), but it seems to me that Kant's *Critique of Judgment* remains the most systematic treatise on the organic in his time.
7. Aristotle, *Metaphysics*, 994b10–15.
8. Descartes, *Discourse on Method and Meditations on First Philosophy*, 68.
9. Robert Boyle, quoted in Bertoloni Meli, *Mechanism A Visual, Lexical, and Conceptual History*, 16–17.
10. Canguilhem, *Knowledge of Life*, 69.
11. Kant, "The Only Possible Argument in Support of a Demonstration of the Existence of God, 192.
12. For a historical account of organology, please see Hui, *Recursivity and Contingency*, 3 and 4.
13. Kant, *Critique of Judgement*, 199.
14. Ibid., 202–03.
15. Arendt, *Lectures on Kant's Political Philosophy*, 25.
16. Kant, "Idea for a Universal History with a Cosmopolitan Aim," 11.
17. We keep the ambiguity of the two words organic and organismic; the organic is opposed to the inorganic; organicism is a systematic, scientific approach for studying the organism and its development.
18. Bertalanffy, *General System Theory*, 48.
19. Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine*. Heidegger read Wiener carefully when his book was translated into German; he also commented on almost every page of the German Hegelian and cybernetician Gotthard Günther's *The Consciousness of Machine: A Metaphysics of Cybernetics*, which claims that cybernetics is a realization of Hegelian reflective logic.

20. Wiener, *Cybernetics*, 44.
21. Simondon, *Sur la Philosophie*, 180.
22. Quoted in Cannon, *The Wisdom of the Body*, 38.
23. Wiener, *The Human Use of Human Beings*, 26.
24. Friedmann, *Industrial Society: The Emergence of Human Problems of Automation*, chap. 5. See also Canguilhem's comment on Friedmann's initiative, Canguilhem, *Knowledge of Life*, 96.
25. Teilhard de Chardin, *The Future of Man*, 151.
26. Heidegger, "What Are Poets For?" 118.
27. Krzykawski, "Towards Idiodiversity. Retranslating Cybernetics," xx.

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