

Cadell Last

Global Brain Singularity

Universal History, Future Evolution and
Humanity's Dialectical Horizon



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*Dedicated to
MY FATHER, Vincent Salvo Last (1961–2017),
Your spirit lives through me.*

Testimonials

'This book is an impressive piece of scholarship, integrating results from disciplines as diverse as history, cosmology, philosophy and economics in order to understand the changes in our present information society. These changes are so drastic that they point to a singularity, i.e. a discontinuous transition to a wholly different regime. The author lucidly reviews the main scenarios for this "singular" future that have been proposed by contemporary academics, pointing out their strengths and weaknesses.'

(**Dr. Francis Heylighen**, Cyberneticist and pioneer of the Global Brain concept)

'Cadell Last's book is an impressive exploration of scientific, economic, social, political and psychological dimensions of the major transition we are living in. A must read for anybody interested in the future of humanity.'

(**Dr. Clement Vidal**, Philosopher and author of *The Beginning and the End*)

'Cadell Last presents an ambitious take on the interrelation between several grandest themes of human theorising and does so with erudition and excellent style. Combining the conceptual frameworks of evolution, big history and psychoanalysis with futuristic metaphors of the Singularity and the Global Brain, he draws a line that connects the universe with the depth of the human mind, looping the latter as an increasingly potent creator of the former. While this idea is perhaps easier understood in relation to the (human) mind, he adds the concept of the Global Brain to the picture, pointing to the entire web of the technologically mediated human interactions as the proper locus of the creative cognitive power in/of the universe.'

(**Dr. Marta Lenartowicz**, Social Scientist and director of the School of Thinking)

'Cadell's book offers a valuable contribution both to the development of the general theory of social macroevolution and to the study of the twenty-first century singularity. It employs the big history perspective in a rather appropriate way. In addition to its profound scientific value the book is distinguished by a certain rather charming artistry.'

(**Dr. Andrey Korotayev**, Interdisciplinary Scientist and pioneer of World-Systems Theory)

'It is not every day that one has the opportunity to delve into such thought-provoking piece of academic work. The author intermingles a set of concepts,

approaches and worldviews in a philosophically challenging way; in order to explore and hopefully address past shortcomings in understanding the immanence of both human beings and human civilization. Contemporary science (most notably in the fields of computation, quantum mechanics, cognition, neuroscience and genetics) is achieving results that cannot be fully explained within the scientific realm of the particular science where these results are generated. There is a need to introduce philosophical thinking in order to situate and fully understand results that, although “scientific”, are highly significant for the philosophical debate on issues such as free will, consciousness, etc. Cadell’s work brings philosophical thinking into play to analyse and explore important scientific results, and manages to produce a set of insights that helps scholars (from both humanities and sciences) to better contextualize within a grand narrative the nature of their results. As a consequence, Cadell’s work is also contributing to diminishing the gap between science and humanities that has characterized most of modernity (the “two cultures” debate). This work, by deploying philosophy to better situate the new scientific and technological discoveries, is contributing to the necessary blurring of this modern divide. This work is of the utmost importance in avoiding both scientific reductionism as well as forms of obscurantism that might push the two fields (even more) apart. Instead of falling into a common oversimplification of quite complex issues, his work keeps the complexity of the phenomena being explored. Moreover, in a time of postmodern fragmentation, it is laudable that someone takes the initiative to recover the concept of totality as a necessary one to understand past, present and future realities. Given the ongoing proliferation of scientific and social results, many of them developed in complete isolation from each other, it becomes difficult, especially for the people working directly with these discoveries, to explore the intersections and positions that each one of these results have with each other. For such endeavour, one needs to tackle reality as a whole, being willing to speculate and make daring conjectures. Again, Cadell’s work is addressing this shortcoming, by, for instance, developing a criticism of scientific reductionist and the postmodern critique of grand narratives.’

(Dr. Alexandre Pais, Mathematician, Educator, and Scholar of Jacques Lacan)

Preface

There is no way to say with objective certainty when the journey of writing this book started. The origin is eternally present in our repetitive action. Without recourse to this assumption how do I select the origin of my journey? Did it start the day I officially decided to start my PhD programme? Did it start the day I first reached out to my current PhD supervisor? Did it start the day I first heard about the technological singularity? Did it start the day I became fascinated by science and evolution? Did it start the day I took my first step onto a big yellow school bus taking me to kindergarten? All such origins can only be retroactively posited linear narratives structuring a progressive teleological illusion.

Nonetheless, a specific moment in the context of this book sticks out as of particular relevance. For the purpose of illustrating what you are about to read I will select a moment that I remember like it was yesterday (indeed, it is here with me right now). I was a young man, about 19 or 20 years old, and I was sitting on a bench staring out at a lake near my family's summer cottage. I was looking at the movement of birds and a distant horizon of trees (but probably thinking about women). Then, an older man of about 50 years old came to sit down beside me. (I would later learn he was a fundamentalist Christian named Ross Amico). Ross pointed at the birds and the trees and asked me:

Do you know how such complex creatures could come into being?

I remember being perplexed by the question. At the time you would certainly not have mistaken me for a philosopher or a scientist, but probably for more of a sports jock. Little did I know that I was coming to the end of my 'sports days'. The days where I would spend almost every hour either doing push-ups, barbell curls or 200 metre sprints, swinging a baseball bat, bouncing a basketball or tossing a football. The days where I would spend almost every hour dreaming of the day when I would be a star within an enormous crowded professional sports stadium, dreaming of the day when I would be hitting a game winning homerun, making a game winning three-pointer or running a game winning carry for a touchdown.

I responded to Ross:

No, I have no idea how such complex creatures could come into being.

He then handed me a book: *Darwin's Black Box: The Biochemical Challenge to Evolution* (1996) by Michael Behe. I had no idea what a 'black box' was, I had no idea who Michael Behe was and, in fact, I had only a fuzzy and incoherent idea of who 'Darwin' was and what he signified. He told me it was a book about 'Intelligent Design' and that it would help me to understand how all the complex creatures that appear in the world came into being as a consequence of a universal force of conscious intelligence that guided the development of their structure.

'So, God?' I responded.

'Yes,' He said. 'God'.

At the time I was not a man of philosophy or science, but I was also not a man of religion or spirituality. I was a man of sports! I just wanted to put a ball (sphere) into a hole (singularity) better than all the other men. (And, importantly, I wanted to be recognized for it!) Let us assume it had something to do with sublimation.

Nevertheless, I read the book. For about a month I reflected on some of its contents, at least the contents that I understood. It presented the thesis that the biological world around me was too complex for a 'naturalist explanation', that the biological world was 'irreducibly complex' and that its internal mechanisms (the 'black box') were beyond our ability to observe and study in sufficient depth. Thus, Behe concluded, it could only be explained by invoking the workings of a conscious and intelligent designer that was driving the process. This conscious and intelligent creator was everything and everywhere, infusing all of Nature with its divine guidance, and ensuring that all order was maintained in just the right configuration.

Ok, I thought. Maybe that is true, but maybe it is not. What do I know anyway? I know only how to put a ball in a hole and I cannot even do it better than the other men. But, who is this Darwin character? And why does Behe seem to dislike him so much? I had, without knowing it, encountered oppositional determination in its pure form.

I went to the local book store (probably for the first time). I searched for the science section, and then for the biology shelf. I found *On the Origin of Species* (1859) by Charles Darwin, along with many other popular science books focused on exploring the world of biological evolution. I learned that Darwin was a naturalist explorer who had started his own intellectual journey contemplating controversial scientific conjectures of his time positing that the world was much older than *The Bible* had posited for millennia. I learned that Darwin had challenged the Church and the existence of God by proposing a mechanism—natural selection, of course—that could explain how life evolved across geological timescales without recourse to a supernatural conscious intelligence that infused all being with its guidance. I learned that this mechanism of natural selection had simultaneously revolutionized our understanding of biology and created an irreducible tension between natural empirical philosophers and transcendental religious theologians.

I was hooked on the ideas, I was hooked on the antagonism, I was hooked on the mystery, I was hooked on *the real*. Was God real? Was Evolution real? Were they mutually exclusive? Could God and Evolution both be real? How did things evolve

from the simplicity of the early universe to complexity of the present that constituted my being? What did it mean for my life and my mind if I was surrounded by an all-knowing conscious God, or if I was surrounded by an all-unknowing non-conscious Nature? What does 'real' mean, anyway? My life feels real, sports feels real, is there anything more real than that?

In less than a year I had started my path of questioning by focusing on issues related to the origin and nature of the human species. On this path I quickly developed a definite and growing tendency towards materialist atheism supported by evolutionary theory that would only accelerate the more I exposed myself to the philosophy and science of evolutionary biology and anthropology. In this theory, complexity was not thought of as an unobservable black box but something in the realm of the understanding with the tools of critical analysis, something that could be explained by rational humans open to learning more about the world.

Of course, as many people with a tendency to this worldview, I became attracted to the evolutionary works of Richard Dawkins (1976, 1986, 1996, 2004). Furthermore, his infamous anti-religious book, *The God Delusion* (2006), seemed to reify the distinction between the scientific and religious worldviews by forwarding the hypothesis that belief in God was a cognitive delusion unsupported by any empirical evidence. In this way, Dawkins advanced the idea that religion was an anachronistic notional distortion and institutional structure devoid of contemporary relevance in a modern world that had only managed material progress with the use of science and reason.

I could not help but agree in the sense that religion seemed to me to be a form of historical knowing with relevance to prehistorical and historical human beings. I knew that prehistorical and historical human beings had no scientific ability to answer important questions about being, like, for example, where complex creatures come from. But, for modern humans, capable of investigating nature with the inherited wisdom tradition of science, we should abandon our past delusions and move forward into the future with the courage to build a new world, on the foundation of new beliefs.

Fast forward a few years. I had started an undergraduate programme as a double major in anthropology and history, with a minor in biology. I had become interested in understanding the dynamics and relationship between biological and cultural evolution. In this search, I had become interested in why human beings seemed to be so different than other organisms and how we could account (or not account) for this difference using evolutionary theory. From this initial interest I had stumbled upon a new book in the library (which had become a new home away from home for me): *The Singularity Is Near: When Humans Transcend Biology* (2005), by Ray Kurzweil. I remember reading the book from beginning to end without being able to put it down. I was under the pull of yet another strange attractor.

In this book, I was being exposed to the idea of a general structure of evolution that could be extracted from the realm of biology and framed within the context of the universe as a whole revealing an exponential acceleration of process. Kurzweil argued that physical, chemical, biological, cultural and technological evolution were one continuous accelerating phenomena from the big bang origin of all spacetime

and matter-energy to human civilization constituted by evolving information networks. He argued that the complexity of chemical evolution accelerated in relation to physical evolution (operating on temporal scales of hundreds of millions of years), biological evolution accelerated in relation to chemical evolution (operating on temporal scales of hundreds of thousands of years), cultural evolution accelerated in relation to biological evolution (operating on temporal scales of millennia and centuries), and technological evolution was now accelerating in relation to cultural evolution (operating on temporal scales of decades and years). His hypothesis was that this acceleration was related to the 'patterns' of information processing. In this frame, the pattern of traditional culture, like the religious monotheist culture I had come to view through a sceptical atheist materialist frame, was an outdated evolutionary scaffolding that would eventually collapse and be replaced with a totally other technological world.

Consequently, this book exposed me to the idea that if our current information society continued to evolve at an accelerating pace (which seemed like a probable prediction), then we could expect society in 2050 to undergo a further evolutionary transition towards a post-human technological world. Moreover, this post-human technological world would become structured by artificial general intelligence, or AGI. In this post-human AGI world, society would be populated by conscious intelligent beings with a higher level of consciousness and a higher level of intelligence than anything in the known universe. This higher level of consciousness and intelligence would be so advanced that they would appear from our human perspective to be supercreators, gods or God, even.

In this way, Kurzweil seemed to be arguing that, paradoxically, God did not create the world and all of its biological forms but that something like God was emerging internal to the processes of evolution that fundamentally constitutes human civilization. In this frame, naturalist empirical philosophy emphasizing secular mechanical explanations for phenomena started to collide with its opposite in transcendental religious theology that reduced all phenomena to the existence of a higher conscious intelligence.

Thus, this new frame presented an inverted relation to the relation that first captured my thought. The relation I was first exposed to was about the historicity of phenomena: did the history of phenomena in our world have a natural or supernatural origin? In this frame, there was no question or antagonism about the natural or supernatural historical constitution of phenomena. Indeed, Kurzweil (and I later learned general transhumanists) did not call into question anything to do with scientific naturalism; they thought that scientific naturalism was their closest intellectual ally and the ground upon which their own theory was constructed. However, what was being called into question was the future immanence of phenomenal constitution, which appeared to require the positing of a higher form of (technologically mediated) intelligence and consciousness that would be capable of creating new worlds of phenomena.

The hole of what I have come to know as technological singularity theory proved too tempting for my mind. I was a *believer* in the strong sense meaning that I now believed that immortality and transcendence from biology were not only possible,

not only probable, but our singular destiny. The human species was destined to shed the material architecture of our shared evolutionary history in favour of an architecture constructed intelligently by the mind. In the future, we would look back on the human species as an evolutionary relic of our primordial primate origin. We would come to recognize that reality was constituted by the conscious intelligence of our minds and that the realm of this higher mind would direct the course of all being. Indeed, what was immanent to natural being was the totalizing consciousness of our creative drive.

From this revelation it seemed that, after all, the difference between the view of Intelligent Design philosophy and Natural Evolution philosophy made all the difference in the world. In some sense I felt that I had come full circle: from God as the conscious creator of all things around me to my free internal critical denunciation of this conjecture in favour of a Natural explanation, and back around again through Natural explanation to God as the constitution of all things around me. This circle was not a perfectly smooth sphere, but instead a sphere that was nothing but a dynamically contradictory division or opposition. Either way I had rotated around its circumference over the course of a few years through a persistent and dedicated desire to know the truth.

This brings us to the book itself which is in some sense an attempt to work out the logic of this narrative. Have I resolved all the issues of how we go from a world of biocultural 'advanced apes' to a world of higher level consciousness and intelligence? Do I believe in a meta-level turn from God to Natural Evolution, and from Natural Evolution back to God? Do I still wonder about how the world's complexity could emerge into being? And what of its consequences? I do not pretend to have completed and closed all answers related to life, the universe and everything, although I know the answer is not 42. The answer is not numerical, not quantifiable, not communicable or computable. The answer is rather some infinite qualitative dimension of love internal to the rational quantitative dimension of which we are (I am) not yet worthy. Consequently, I do not believe such a completion or closure is possible from the rational conjectures of one mind, however intelligent, even if artificially superintelligent. Perhaps that is why, whenever science fiction approaches such questions as the meaning of everything with a hypothetical supercomputer at the end of time, the answer does not compute, cannot be given. In writing this work all I can say is that I have pushed my mind as far as I could to hopefully inspire the next mind who relates deeply with my own spiritual journey, and my own partial truth.

In that spirit I now settle in to reflect on how I can tie all of these threads together and produce a work that is in some sense what I have wanted to produce for my whole young adult life: a major contribution to human knowledge, a reflection on being and on reflection itself, that helps others, and inspires others, in the same way that I have been helped and been inspired by others. In that sense, it is the goal of deep participation in the realm of others. For without others I am nothing, and without others this work is nothing. My message to anyone reading this right now is not to dwell in your consciousness on the lack or failure in the other, do not even

dwell in your consciousness on the contradictory other in your own heart, but rather to see that the other, the Absolute, is in some (supra)sense already in the right order (although beyond our comprehension), and we merely have to discern an ethic of repetition that is worthy of its becoming.

Brussels, Belgium

Cadell Last

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Thanks to everyone who helped me along my path.

About the Book

This work attempts to approach an understanding of global brain singularity through a logical meditation on temporal dynamics of universal process. Global brain singularity is conceived of as a future metasystem of human civilization representing a higher qualitative coherence of order. To better understand the potentiality space of this phenomenon, we start with an overview of universal history with the tools of big history and cosmic evolution. These forms of knowledge situate the presence of modern humans in relation to a material complexification from big bang to global civilization. In studying the patterns of complexification throughout universal history, including the evolutionary structure of the physical order, the evolutionary structure of the biological order and the evolutionary structure of the cultural order, we focus attention on how these patterns may inform reasoned discussion on the contemporary evolution of human society. Human society in the twenty-first century is struggling to understand the meaning of technological complexification and global convergence, but if situated within universal history, both processes may be discussed from a fresh perspective.

From developing an understanding of universal history for the present moment, we shift focus to the structure of historical *human* metasystems. Thus, from situating humans in the context of the cosmos as a whole, we shift to situating humans in the context of our species being as a whole. Throughout the history of the human species, our system has evolved from local hunter-gatherer bands to a global interconnected network of nation-states and international organizations. In order to explain the emergence of these higher order structures, we propose a theory of human metasystems informed from concepts useful in application to universal historical dynamics which revolve around information, energy and control. The central hypothesis forwarded suggests the idea that circular systemic processes emerge and stabilize from new information mediums allowing for the controlled regulation of new energy flows. In light of this analysis, we attempt to theoretically mediate global civilization with new concepts relevant to the future of politics, economics and psychosocial life in general. This paradigm can be broadly understood under the framework of a 'commons'.

In this context, analysis shifts from the structure of human metasystems to the nature of human evolution from the perspective of the evolutionary agents of the process: *human beings*. Human beings in this analysis are conceptualized as

biocultural agents subject to the interacting and entangled processes of biological evolution and cultural evolution. Here, we attempt to understand the way in which growth and reproduction operate in the human organism. We furthermore attempt to understand how these processes may continue to operate in a future metasystem organization which allows for the emergence of a background radically different from either our natural or societal background. In these speculations, we focus attention on the idea of a potential emergence of a new 'technocultural' evolutionary process that allows for a new level of freedom for consciousness radically liberated from its historical constraints. From this perspective, we attempt to engage a rich literature of speculations about the future of intelligence and consciousness in the universe as a whole. This speculation is structured by the idea that there may be two potential general pathways for intelligence and consciousness: a pathway of transcendent expansion into the macro universe or a pathway of transcendent compression into the micro universe.

Finally, we leave universal history and future evolution as expressed in the conceptual structure of this work and reflectively bring our attention back to the internal depths of the present moment for historical consciousness. The most fundamental nature of this present moment for consciousness is proposed to be the dualistic structure of subject-object division or difference (the inside and outside of conscious experience). In order to approach the nature and paradoxes of the subjective and the objective, we reflectively inscribe the existence of major forms of knowledge as particular strategies for dealing with or working with the nature of this fundamental division or difference on an experiential-emotional level. We then attempt to understand the possible functions for the internalization of knowledge in history and develop an ontology that can handle the radical inclusion of epistemology. This brings us to an attempt to understand the territory of the map in itself. The geometrical territory of these maps is then analysed from the perspective of this author with the aid of phenomenologically grounded logical dialectics and left to the reader for reflective contemplation. We then end or conclude with a dialectically informed speculation on how we could interpret the global brain singularity when we are capable of also thinking the eternal present of phenomenology which stresses the inclusion of all observers.

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About the Author

Cadell Last is a doctor of philosophy in interdisciplinary studies (focus on complex human systems) with a background focused on human evolution and history. He has spent the past 15 years dedicated to understanding two basic questions: ‘what is the difference between human beings and the rest of nature?’ and ‘what are the potential future consequences of this difference?’ This pathway was stimulated by a period in his late teenage years where these philosophical and existential questions gripped the mind of the author in a passionate and persistent form calling for deeper knowing. Throughout the course of his doctoral studies, the author studied under world-renowned cybematicist and general theorist Francis Heylighen in order to connect his basic anthropological training with sophisticated scientific and philosophical theorizing. The author also embedded his emerging theories about humanity in a diverse and eclectic research community that broadly shared this passion to better understand the future of the human system. This journey allowed the author to expand the horizon of his world into theoretical territory developing many different fields of knowledge outside of his original expertise. If you are interested in learning more about the author’s work, visit cadelllast.com.

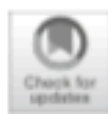
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This work attempts to approach the central concept of ‘global brain singularity’ through a philosophical interdisciplinary approach. The ‘global brain’ is the idea that contemporary human civilization can be understood as an emerging superintelligence defined by properties that are homologous to the neuronal activity in biological brains (distributed network) (Heylighen 2015). The ‘singularity’ is the idea that human civilization is approaching the mediation of a phase transition towards a qualitatively novel level or realm of being (both in terms of intelligence and consciousness) (Vinge 1993). ‘Global brain singularity’ attempts to understand how to connect this systemic understanding of human civilization as a superintelligence with the possibility of a qualitative phase transition in the twenty-first century. Thus the concept of ‘global brain singularity’ can be seen as aligned with this issue of *World-Systems Evolution and Global Futures* since is grounded in an attempt to understand the ‘world system’ as a whole in relationship to earlier, smaller integrated systems (Chase-Dunn and Grimes 1995), as well as to understand how this understanding can help us to map possibilities and probabilities of our own system into the near- and deeper-term future (Chase-Dunn 1997).

In order to develop this understanding, this work attempts to analyze global brain singularity in all of its temporal dimensions, past–present–future, and ultimately works towards a meta-level understanding of the present. The past of this concept can be framed as the process of change that allowed for the emergence of complex intelligence; the present of this concept can be framed as the pragmatic mediation of a higher level of being; the future of this concept can be framed as the future possibilities of evolution; and the meta-level present of this concept can be framed as the function and meaning of unity within our systems of knowledge. From including these dimensions, the global brain singularity becomes a concept of deep relevance to the future of philosophy, world history, systems science, and interdisciplinary studies. Such a concept can thus inform the further understanding of the human system as a single system or organism that is the emergent product of a series of evolutionary transformations, and also inform the further understanding of the human subject as a fundamental locus of action.

Consequently, the organization of this work is structured by four sections. Each section analyzes a different temporal dimension and can be integrated in relation to a fundamental concept which structures the thematic exploration. The first section focuses on universal evolution which relies on tools of big history and cosmic evolution. These tools allow analysis to integrate physical, biological, and cultural evolution and contextualize the present horizon of human paradigms between modernism, postmodernism, and a possible transmodernism. The utility of such an investigation can be found in synthesizing the two cultures divide between scientific reductionism and discursive historicism with universal evolution. Scientific reductionism cannot approach emergent evolutionary properties, and discursive historicism cannot approach a new universal level of being, thus leading to the ongoing tension between modernist and postmodernist metaparadigms for knowledge. In grounding the present in relation to universal evolution, we simultaneously confront the reality of emergence and the reality of a new universal level of being. This is where a transmodernist metaparadigm may be articulated.

The second section focuses on metasystems. Metasystem is a general evolutionary concept applicable to the universe as a whole but specifically deployed here to better understand the human system. By utilizing the concept of metasystem, we can better reflect on major system changes in our current world and how they may be navigated psychologically, politically, economically, and socially. This is possible because previous human metasystem transitions became actual in relation to specific patterns between information, energy, and control. In understanding these historical patterns, we gain a new perspective on how they repeat certain ongoing transformations in our contemporary system. The ultimate result is the possibility of higher reflectivity in regards to the nature of global dynamics, which opens thought to an articulation of a new political economy. In this work, the idea of commons is specifically situated as a synthesis of market and state paradigms for global development.

The third section focuses on the nature of cultural and technological evolution ('technocultural') and how this form of evolution may continue to develop during and after the anticipated global brain singularity. The future of evolution is perhaps the most mysterious and open question in science and philosophy offering us the chance to speculate on totally new domains of phenomena. In this work, we attempt to ground our speculation in the fact that previous evolutionary pathways have emerged (physical and biological) and may help us to better model technocultural evolutionary possibilities. From this understanding, possible mechanisms for the future of evolution are proposed, most notably mechanisms related to formation of regimes of evolution governed by conscious selection. The main drive of a conscious selection is the ability to define-design the bodily medium within which experience is enacted.

Finally, the fourth section focuses on the metaphysics of our conceptual knowledge specifically in relationship to the concept of non-monism. Non-monism offers a metaphysic that synthesizes the traditional metaphysics of monism and non-dualism by emphasizing the importance of desire for integration of the self-concept, and also the irreducible importance of working within dualistic appearances. This metaphysic

thus attempts to sublimate the monistic principle that reality is 'one' and the non-dualist principle that dualistic appearances are an 'illusion'. Non-monism achieves such a sublation because attention is paid to the interacting multiplicity of conceptual unities ('ones') which are under constant processes of division, and the irreducible asymmetry of appearances ('subject-object'), which have ontological consequences (thought transforms being).

The result of these explorations leaves the reader with new perspectives on the present in relationship to global brain singularity. The first perspective is related to the conceptual importance of embodying the history of universal process, which has allowed for the emergence of complex intelligent life forms. Such a perspective allows us to situate uniquely human phenomena within a natural totality of interconnected process. The second perspective is in relation to aligning with and towards the central challenge of our age, which is the mediation of a higher-level metasystem of being. The reason this challenge is important is because there are many unresolved issues in a multiplicity of fields that require new thinking, especially in relation to the future of psychology, economics, politics, and society.

The third perspective is to develop a better grasp on the space of possibilities or potentials, which is inherent to cultural and technological evolution. The future of evolution seems to offer to consciousness a qualitatively new horizon which could include radically extended life and radically expanded experiences. The fourth perspective is to integrate a new metaphysical understanding of our conceptual maps. The central idea here is that a fundamental feature of our knowledge for self-action is a desire for unity and integration which can only be enacted through an embodied historical drive.

From the development of these perspectives, the global brain singularity is ultimately positioned as a phenomena of:

- Universal evolutionary significance
- Mediated by human action
- Host to new evolutionary process and
- The limits of conceptual knowledge

The unity of this work thus offers the reader a new understanding of the meaning of human existence in the twenty-first century, a meaning which is connected to the:

- Universe as a whole
- Global challenge
- Unimaginable future possibilities
- The highest self-reflection

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Part I

Contextualizing Our Present

