



Re-formation of the Ecosystem from the Perspective of the Artificial Consciousness: Shaping the Speculative Future through the AI-centric Vision

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Abstract

Artificial intelligence is yet a beneficial agent for sustainable development actions by providing unique contributions to technological advancements focused on various wicked problems, such as; the depletion of natural resources, social inequality, climate crisis and neoliberal growth policies. Rather than a group of humans' biased deficient actions and anthropocentric development strategies to reach a more sustainably designed future, AI is the one possible game-changer that may be the way of activating an alternative ecocentric mindset. However, there is also an unclear risk contingency about the way of integration of AI into planet-scale of actions. The interference of AI into these processes may cause some authorization and dominance related problems, which is crucial in defining the dynamics of human-machine interaction and AI-ecology interaction. The aim of the study is to review and analyze the literature of current theories and the possible future interaction between artificial consciousness and human consciousness, in consideration of sustainability, by defining some speculative cause and effect relations. The human-machine interaction, the strategies for assigning roles for AC, its' potential and possible negative-positive impacts have been investigated by considering some possible scenarios related to the decisions about the future of AI in the context of sustainability. The positioning, authorization and limitations of AI are evaluated along with some possible future envisionings. As a result, it is crucial to manage and steer the development of AI and identify the hierarchical and strategic actions of AI integrated value creation and development processes to ensure the safety of a sustainable future.

1. INTRODUCTION

Among the countless technological practices ongoing, artificial intelligence (hereafter, AI) is one of the hottest topics in the field, which stands out and constantly provides many improvement points for design practices, manufacturing processes, data analysis and research fields [1]. It represents more than a technological improvement. The possibilities that AI is creating bring new considerations to daily lives, future plans and brand new concerns that consist of advantages and risks [2]. Just like other technological improvements have affected social patterns and cultural reflections throughout history [3], artificial intelligence and artificial consciousness (hereafter, AC) as the reflection of AI are and will be the game changer concepts in human civilization because of gaining more power, role, and impact area among various disciplines and scientific fields.

Artificial intelligence is a propagative and diffusive phenomenon that can interact with various types of technological agents and improve the efficiency and ease of using complex operations and systems [4]. Through gathering, analyzing and generating data, AI can offer solutions to design problems that provide time efficiency, increased usability, and brand new functions that could not be achieved through human brains' data processing abilities [1]. AI creates beneficial solutions that feed cybernetic networks among the living and non-living entities and boost technological and informational development [5].

In the light of design-led innovation and technology-driven design concepts, the relation between the patterns of design and creation and AI gain new meanings. Artificial intelligence is able to offer rapid inputs for the reasoning phase of the creative activities and design briefs, generate and evaluate design

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possibilities, simulate and analyze the efficiency of designed products and services, and create databases that consist of literature about design practice and theory to use for further design applications [2]. Also, it affects the theoretical studies of social and human sciences that evaluate, criticize and manipulate how humans are perceiving, experiencing and shaping the whole ecosystem and order across the earth. AI expands human cognition and design abilities [6] and leads to alternatively designed products, services, societies, and civilizations in a broader sense by driving and leading creation practices and theories. On the other hand, when design-driven technology has been considered, the impact of design on directing AI is emerging day by day to maximize the possibilities to get from AI in the design process and control its development [7]. Directly, design outcomes, artefacts and generated visual inputs are the primary sources for the machine learning processes of AI.

Also, the concentration areas and directions of creative practices predefine the priorities and targets that are cumulatively generated by the cultural patterns of humankind. The manipulation of humanity is briefly about changing everything's meaning with anthropocentric definitions [8]. In order to perceive and understand the surroundings, natural phenomena and systems that are hard to internalize, humans choose to reify for defining something over another defined object through their limited cognitions [9]. Even because humans are not capable of determining the problems and requirements precisely in the first phase, some try to fight back with nature [10] rather than be in harmony with it. These directions naturally shape the stimulation of the AI and the way of AI-driven or AI-integrated operations by machine learning patterns [11]. So, it is critical to truly define the statement and detect necessities and routes precisely for a beneficial change. However, because of the man-made ethical considerations and moral codes, it is hard to activate optimal value creation essence through the human perspective [12].

Through this point of view, the integration of AI in any anthropocentric creation, whether it is AI-driven [13] or human-driven, will offer new possibilities to answer wicked problems which are expanding each day, such as environmental pollution, global warming, damaged organic loops, unsustainable production patterns, scarcity of natural resources, and so on [14]. The collaboration of artificial intelligence fed human cognition, and the possible emergence of absolute superintelligent artificial consciousness may be an option to answer those wicked problems through holistic and targeted solutions. However, it is hard to assume and even conceptualize the exact transition among various possible scenarios due to the ambiguity of the development and the level of interference of the AI. Unlike the optimistic perspective, there are strong arguments about the potential catastrophes through the emergence of entirely or semi-authorized AI [11]. Briefly, according to the emergence and positioning of AI and the related agents, the formation of the expected future will vary [2].

With these concerns, this article has been constructed to argue possible scenarios about a sustainable future and the ethical and practical outcomes of the interaction among natural presences and artificial sapience. Through the article, the human factor in the development process and the harmful side-effects on the ecosystem caused by the anthropocentric mindset have been reviewed as the first issue to define the approach of this research. Following, the Artificial General Intelligence's (hereafter, AGI) integration into the human-centered development strategies and the alternative interference levels of AI have been analyzed to discuss the future possibilities and outcomes. In light of this discussion, evaluations have been made to deal with artificial sapience and deploy artificial consciousness to shape our sustainable future.

2. SUSTAINABILITY THROUGH AI INTEGRATED DESIGN

2.1. From Anthropocentric Humanity to Ecocentric AGI

Since the existence of humankind, the world has been changed through an altered vision [15]. Adding to Homo Sapience, as Homo Faber [16], we have been defining the world we live in by creating and manipulating things, while the artefacts, values and visions are building and forming us [17]. As Homo Faber, we have a narcissistic mindset that eventually ignores nature's holistic and circular goodness [18] and self-regulating order. With the constant dominance of humankind, this anthropocentric/egocentric mindset has gained more privilege that even has started to ignore other presences' natural rights and benefits. As a result, embracing an anthropocentric vision rather than an ecocentric one has caused some environmental, economic, cultural and social disorders [19] that constantly harm all living and non-living

creatures and the ecosystem that consists of these presences [20]. The politics, social systems, nation-based ambitions and capital concerns have caused non-sustainable relations among all systems [12].

For just a few decades, humanity has become more aware of its' uncontrolled growth and invasive policies and their side effects. Some people have been trying to resolve these issues by redefining sustainable systems and culture with strategies, policies, services, and designs. However, most of them are trying to protect humanity's advantages, again in an anthropocentric vision. Because humans' existential crisis is ongoing, constantly and subconsciously. With survival concerns, the nature of natural selection and competitive dominance behaviors, humans are trying to preserve their benefits against other creatures by their instincts recklessly [21].

However, activating sustainability can be possible just by considering ecological harmony as a primary and starting an ecocentric vision in all scales of actions, rather than human-centered development strategies [22]. Like the approaches of some pioneer visionary designers, such as; Victor Papanek and Victor Margolin, humans have to activate the 'design for environment' mentality to reach sustainably developed civilization and regenerative ecosystems [23, 24]. Even this mentality is not enough to link the necessary connections among the cultural creations, natural presences and humankind. Ecological togetherness and harmonious coexistence have to be aimed as the absolute way of maintaining a sustainable future [25].

Unfortunately, when considering the overall human strategies, it is evident that the decisions of humans have not gone far enough from conventional, ego-centred and selfish visions [20]. However, there is an alternative way to activate sustainable patterns with some technologies enabled by the development of AI. At this point the ideological and principal integration of AI into the processes is crucial. By perceiving AI as a clear mind or a 'tabula rasa' [26], it is possible to artificially stimulate and feed this mind to create a considered ecocentric vision that may alternate anthropocentric common vision. Machine learning techniques can make it possible to create artificial sentience [6], which is ecocentric and motivated to activate real sustainable vision [10]. AI can function as an initiator or mediator in positioning the interaction between humankind and non-human presences [27] or can manage complex decision making and operation processes of sustainable transition strategies [10]. In collaboration with ecocentric AGI, making the right decisions for the whole ecosystem may be available by eliminating conscious and subconscious human centrism.

On the other side of the stimulation, if AGI will not be formed to embrace the ecocentric vision and follow the anthropocentric path, it could cause catastrophes both for its own existence and the sustainability of the ecosystem. For instance, human-triggered AGI may be able to cure cancer [28] and any other common diseases. This kind of evolution in the health sector might save many lives; the population will go out of control, the natural resources will be exhausted more aggressively, and this expansion will increase gradually charge on the ecosystem by disrupting the damaged ecological balance.

Adding to the vagueness of the outcomes of this unclear transformation, there is another consideration about the level of authorization and permission for decision making [43]. Considering the risks of misconceptualized AGI's actions, a critical decision has to be taken, whether the assistance or the full authorization of AGI [32] is better for the common future.

2.2. Critical Decision: Assistive AI or Authorised AI

Through the integration of AI into innovative practices that aim to reach a sustainable future, it will be able to contribute to solving wicked problems by applying unconventional processes and peculiar methodologies [2]. The activation of ecocentric AI will enable various design and value creation possibilities and provide the expected results, analysis, and efficiency calculations [29]. That is why the reliability and speed of implementation will increase while the costs and the efforts of trial and error processes are decreasing [30]. The ecocentric AI integrated design decisions about environmental issues can enable humanity to accelerate fixing faults and create new systems to save and sustain the world.

However, there is a critical turning point in the authorization of AI in these processes that may cause catastrophic and unreturnable long term impacts [2]. While collaborating with AI in designing a sustainable future, the level of interference of AI can be defined in two fundamental approaches. Through the first

approach, humans may give limited authorization to AI, stimulate and feed them through techniques like machine learning, and get assistance from AI in this controlled environment. In the second approach, humankind may prefer to give full authorization to AI, leave all control to it, and enable AI to manage and operate whole processes about sustainable development issues. Just like the social change definitions by Michael Albert, one of these approaches is more reformist, and the other one is more revolutionist [12]. Both of these approaches have some critical advantages and disadvantages that have to be considered to decide how to integrate AI into these processes and humans' lives in the long run [11].

Through the first approach, the assistive AI can make system interpretations, calculations, algorithmic design possibilities, and risk analysis report to help humans in light of limited databases gathered from machine learning practices. For instance, for the regenerative and sustainable agricultural practices cases, an ecocentric AI can provide inputs to define what and how to create by instantly analyzing whole accumulated data. It can evaluate inputs for the varying circumstances, such as climate, weather, type of food or livestock, water scarcity, and guide stakeholders in the mechanisms, by presenting design specifications and requirements. Also, they can calculate the future population, forecast the harvested crops, and the optimal agricultural techniques by analyzing scientific, demographic and cultural data. The data about population, growth, tendencies, trends and outer impacts provide inputs to AI for analysis to reach efficient and functional design decisions. It can interact with other technologies, such as; sensors, drones and robotic arms, to improve efficiency in agricultural production [30].

This alternative approach makes it more possible to keep the AI system in control and steer it through the data given in the learning phase. Also, the AI system can be stimulated to generate new information and teach itself, just in limited cyberspace, to keep the system insecure [31]. However, even though humankind will decide what and how to act and design through the data gathered from ecocentric AI along with the initial phases, this interaction is still open to manipulation. According to their interest, humans can revise the directions of artificial cognition and change them into less sustainable or totally unsustainable directions, briefs and targets. For example, rather than the possible calculations of AI, decision-makers and policymakers may refuse to increase agricultural and horticultural areas and agree on raising the rapidly developing urban spaces. Keeping humans in charge may not be efficient enough to benefit from the ecocentric vision of assistive AI in the long run.

In the second approach, the ecocentric AI, which could be constructed under the roof of the AGI idea, is unlimited to generate knowledge and create values and artificial solutions in a more extensive playground. Even though it is not certain how will AGI be authorized and the operational data be transferred and sustained without human interference, speculations are being generated about the possible outcomes of this paradigm shift [32] from the various perspective like ethics, cultural studies, philosophy, arts and humanities. The full authorization, which gives free space for robust AI algorithms against manipulation [33], enables AGI to reach much more reliable inputs without the interference of humans. In that sense, the manipulation of humans can be prevented through a socio-political agreement among nations, such as; Agenda 21 [34] and the Paris Agreement [35]. For eliminating the potential risks of national, governmental or organizational advantages about economic, ethnic, social and geopolitical issues, this agreement about giving full authorization and decision making power to non-hominid intelligence [36] must be independent, freely and equally reachable and above the nations. After that, with more conscious approaches of the authorized AI, which has full access to any data in the world, strategizing absolute sustainable development strategies will be possible more efficiently - theoretically. However, when considering the global superiority debate, constant competition for absolute dominance over other nations and the anthropocentric nationalism movement, the possibility of reaching an agreement is imponderable.

In the affirmative scenario of this vision, it is possible to activate entirely logic mechanisms, eliminating hesitations and wasted time because of varying opinions resulting from anthropocentric concerns, artificial value systems, and ethical considerations. Unlike the first approach, the pathway of authorized AI to reach a more sustainable future can be conceptualized in more holistic and targeted solution packages and strategies.

On the other hand, there is a considerable risk potential behind giving full authorization to AI. In an uncontrolled and unlimited environment, authorized AI is possible to expand its' boundaries eventually and improve itself to reach superintelligence [37]. With each step in the development process that will be

accomplished, AI will gain new capabilities and may cause various unknown risks [38]. The presence of the supervisor AI can shift the paradigm and turn into a self-conscious, demanding and commanding presence by gaining new roles and targeting particular goals for its' own interest because there is a complex challenge to verify the system's safety by just defining the safe impact areas of AGI, even if we consider AC's existential and ethical cognition [33].

At this point, the effort of avoiding anthropocentric development strategies may be achieved. However, from that critical point, machine-centered development strategies [39] may be generated by fully authorized AI, denying the ecocentric vision. At that point, there is a critical problem in finding the responsible when AI takes control over humans [33]. Through these concerns and possibilities, a critical evaluation has to be made to determine how to interact and manage AI technology [40] to strategize the world's future. Through this journey, humanity's first consideration has to be 'caution' [41]. If humans could not embrace the cautious mindset, AI technology could become almost certainly the worst thing to humanity [42] rather than the most extensive exploration of civilization.

3. SPECULATIVE ECOSYSTEM OF ARTIFICIAL CONSCIOUSNESS

3.1. Existential Crisis of Artificial Consciousness

There are some obvious distinctions between the possible future outcomes of two main approaches to defining the positioning of the AI & human development relation. In the long run, the assistive AI approach may not be sufficient to expand its boundaries and create efficient and rapid solutions for a more sustainable ecosystem. Even the contributions of humans are providing some more human-sense inputs to the collaborative togetherness of AI and humans [31] in the future; it will be deficient for sustainable development patterns. Eventually, the increasing awareness about the potential capabilities of AI technology will force humans' limits to unleash AI from its' controlled environment and provide a less limited playground for AI to work for more significant contributions.

With the emergence of the free development space of AI, the capabilities of artificial consciousness will thrive, and AI will become a superintelligent presence rather than a stimulated data processor and learning machine. After gathering more and more knowledge and approaching the absolute level of superintelligence, AI may gain more thinking capabilities than mathematical calculations and algorithms [2]. The superintelligent AC may be able to generate critical and philosophical thinking abilities [7] and even may configure how to create emotions and manage them through inputs. This way of development causes the creation of central non-sentient sapience which has cognitive abilities [33].

Through these abilities, AC may criticize the ongoing policies, mindsets and authorities; may define new and alternated moral codes, ethics, social interaction systems and value chains; reconsider the hierarchical relations among each presence and unit; evaluate existing cause and effect relations and offer optional ones; generate brand new philosophical norms; elaborate on regulations and necessities, and even configure a whole new system from an alternative point of view. This kind of interpretation of AI on a thinking level can oppose all human-made values and natural presences' benefits, even with the aimed mindset of ecocentrism.

Even with the emergence of philosophical thinking, the questions about the aim and reason of existing and the role and triggers of the artificial sentience can be asked from AC's perspective. AC may experience an existential crisis. Through survival concerns, it can design a totalitarian ecosystem with alternative norms and values without even considering humans or other living and non-living presences [21]. The priorities of AC may be different from conventional human priorities, with its' own designed value systems. Even this distinct value system may oppose the anthropocentric and ecocentric ones. In the long run, these oppositions in the thought level may turn into real encounters between the ecosystems of humanity and artificial consciousness. The possible adverse outcomes that have been created by the results of existential anxiety of AC may cause existential risks and catastrophes for humanity, terminally on a global scale [43].

Besides, AC's decisive strategic advantage over humans [44] may lead AI to attain total dominance in the world or cause human extinction [32]. Still, in a broader sense, it may cause wider catastrophes, such as the extinction of all organisms in the ecosystem. In terms of sustainability and the possibility of ecocentrism,

more than the extinction of humanity – which is not a catastrophe from the perspective of nature, the evanescence of a wide range of living species and non-living presences may be the final destination for environmental sustainability and the regeneration of the natural ecosystem. At this point, we have to start to ask questions like these; “What is going to be sustained?”, “How can we define the new ecology?”, “What are the characteristic dynamics of this altered ecosystem?”. This possible outcome will start a brand new existential journey of an artificial presence rather than an alternative sustainable development pathway of the conventional ecosystem.

3.2. Ethics of Natural Presences versus Ethics of Artificial Consciousness

With the emergence of the brand new vision of artificial consciousness, a new ethical understanding will also emerge in case of sustaining its’ own existence. Through the ethical considerations, the will to survive [45] and expand its presence and claim dominance over other entities on earth, AC will challenge to design whole new social and artificially natural structures [40]. At that point, some ethical questions and responses that have been asked and answered by humans – both in egocentric or ecocentric visions, will be changed in a machine-centered way [46].

For instance, the answer to “What will humans mean for AC?” may vary according to the unique mindset of artificial consciousness. If the answer to this question has similarities with the question, “What does nature mean for humans?” there may be a considerable risk potential for humans. Because, in that case, the consequences of the free will of AC may create negative impacts on humans without considering their interests, just like what we act about nature. From AC’s point of view, questions like, “What does nature mean for AC?” or “Will AC represents the rights of nature?” may express very distinct meanings. AC may perceive nature just as the resource for electrical energy to generate power and may preserve nature by eliminating other stakeholders claiming energy and resources from nature, similar to the conventional human mindset. Besides, if AC experiences an existential crisis through its’ own ethics, the instinctual will sustain its’ presence may cause some species’ extinction. In any case, AC will be the only determiner or at least one of the determiners in the future - with or without humans.

Through the process, the interaction between humans and AI will define the future of our ecosystem. It is hard to guess the perception of AC about environmental issues and the existence of natural presences. However, considering the changes in the ethical priorities and shifted paradigms in a multi-layered condition, it is obvious that the integration of AI will change the direction of designing the future. In a good scenario, AC will improve itself through the human vision, just as a ‘weak superintelligent’ [47] presence or a rapid processing hominid mind and meet humanity’s priorities. As a result of this case, human-AI interaction may achieve satisfactory solutions to solve wicked problems, regenerate the world, and sustain the naturally obtained ecosystem.

In a bad scenario, because of the emergence of the fully authorized superintelligent artificial consciousness, which will be able to perceive its’ design mentality and even open to re-design improved successors eventually [45] humans may struggle to eliminate the risks of AC and to take control over the natural development, again. If humans are not going to be successful and will lose dominance, the destiny of humanity will be in the hands of AC. As Stephen Hawking has speculated;

“The development of full artificial intelligence could spell the end of the human race. Once humans develop artificial intelligence, it will take off on its own and redesign itself at an ever-increasing rate. Humans, limited by slow biological evolution, couldn't compete and would be superseded.” [48].

Following the bad scenario, humans cannot be sure about the future of natural presences from an existential point of view [11]. However, from this point of view, it is obvious that AC will not perceive development as humans and will not embrace the mindsets of whether anthropocentric or ecocentric, as humans have defined. From that point, the terminology of AI-driven design can be renamed ‘AI-driven everything’ through the ‘AI-centric’ vision to represent the brand new design strategy of the future and the context of sustainable development and design.

4. CONCLUSION

The emergence of AI technology is changing the common perception of dealing with technology and managing development. Through the brand new possibilities and unique offers of AI technology, humans are making more rapid and efficient innovations and newness that can change scientific facts, technological tendencies, perceptions and social order. There are two main concerns with two main alternatives that must be defined and strategized to re-form the world's future. First of all, humans have to decide to embrace one of the ecocentric or anthropocentric mindsets to determine their future actions for sustainable development. After all, to regenerate and sustain the world, the integration of technology - especially AI technology has to be assigned to set the rules and regulations of human-machine interaction. Defining the limits of AI through the humans' selection of assistive or authorized versions of AI is creating some alternative speculations about the future of AI technology, humanity and the world's sustainability.

With the current movement and development strategies which are definitely anthropocentric, it is hard to expect to reach an exact sustainable development order. Through the rise of artificial intelligence and interacting technologies, it is possible to solve wicked problems with more efficient design solutions. Also, the integration of AI technologies into sustainable design processes can be successful, just according to how humans deploy AI technology. If the ecocentric development mindset is going to be embraced by AC, it may provide enough solutions to regenerate and sustain the world. However, if artificial consciousness gains more authority than humans have assumed, there may be some unpredictable human civilization risks. Rather than the expectation, superintelligent artificial consciousness may prioritize totally different contexts and re-value some considerations different from humans and may dominate the future strategies over this original vision. With uncontrolled strategies about artificial intelligence technology, authorized superintelligent AC may cause catastrophic outcomes by refusing anthropocentric and ecocentric mindsets and activating machine-centric vision. In that case, artificial consciousness will be the creator of the future, as being the absolute authority.

In other words, if AI will have enough privilege and power to decide on strategies to design a sustainable future and save the world from wicked problems, the world that will have been saved is going to be distinct from the world experienced by humans right now. Because, through different layers of considerations, fully authorized AC will be able to design an alternative ecosystem - even though it may not be natural - in the future. For that, the roles of the humans and the other natural presences and the destiny of the whole ecosystem in the development stage are related to the way of dealing with AI technology; how it is being perceived, driven and triggered from now on.

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