Martin Heidegger on Technology: Implications for Artificial Intelligence

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Abstract

This paper explores Martin Heidegger's perspective on technology and its implications for Artificial Intelligence. As AI becomes more advanced and assessable, there are growing concerns about its impact on human existence. This concern has inspired our attempt to demystify Heidegger's notion of technology in order to show its relation to AI. Heidegger argues that technology, in its essence, is not merely a means to an end but rather a way of revealing the world. He emphasises the importance of understanding technology's impact on human existence and warns against reducing it to a mere tool for efficiency and control. Drawing from Heidegger's philosophy, this paper examines how his insights can shed light on philosophical concerns surrounding the development and integration of artificial intelligence in society. It also discusses the potential consequences of overlooking Heidegger's critique, urging for a more thoughtful and reflective approach towards AI development.

Keywords: Martin Heidegger, Techne, Technology, Artificial Intelligence

Introduction

The world is abuzz with Artificial Intelligence (AI), and recent breakthroughs in its generative capabilities have captivated many Internet users and onlookers alike. AI's generative capabilities have led to the creation of highly realistic deepfake videos and images. These AI-generated images and videos have flooded

social media, raising concerns about the potential for misinformation, misrepresentation and manipulation. Apart from videos and images, AI platforms are also capable of generating realistic text and audio, further amplifying its creative potential. These AI platforms have become particularly important for social media users, and content creators because of their creative capabilities. However, the increase in the use of these generative-AI platforms also has the potential to misrepresent our perspectives of reality because it has become difficult to discern real and fake content. The use of AI seems promising across various fields of technological endeavours, however, without an explicit ethical and legal framework its potential for harm is inevitable. For example, the current fad of generating pictures by internet users using various text prompts evokes existential questions bothering on authenticity and identity. Users can decide on who they want to be and generate realistic images of themselves accordingly which they share on Social Media. This attempt to alter, modify or re-represent our appearance and invariably our genuine self is an example of the disparity between technologies like AI and reality.

AI is a significant representation of technology in recent times, as it has increasingly become a subject of interest worldwide. This aspect of technology is of particular interest in this paper because of its potential impact on the human experience as it increasingly becomes popular. The categorization of AI under technology is pertinent to this paper because it provides the opportunity for its assessment through the lens of Martin Heidegger's view of technology. This paper attempts to elucidate Heidegger's notion of technology and show its implications for how we consider and interact with AI. Martin Heidegger's view of technology offers a unique lens through which to assess the implications of human interaction with AI. According to Heidegger, technology is not simply a tool or means to an end, but rather a way of revealing and shaping our understanding of the world (Heidegger 1977). Applying this perspective to AI allows us to question the underlying assumptions and values nested in its development and use. By considering Heidegger's perspective, we can critically examine the philosophical and ethical dimensions of AI and make informed decisions about its role and place in human existence.

What is Technology?

At first glance, the term technology seems familiar, but further scrutiny of the meaning of the term makes us realise how elusive it is. We are quite familiar with technological objects and other symbols or representations of the term, never fully coming to terms with its definition. In this section, we will attempt to uncover the meaning of technology. Technology is often associated with machines, computers, and gadgets that simplify our lives. However, its true essence goes beyond mere physical objects. It encompasses the knowledge, skills, and processes that enable us to create and innovate. Understanding technology requires delving into its multifaceted nature and the way it affects the world. The term *techne* is the source of the word technology and is requisite for understanding technology as a concept. The term *techne* is often translated as "art", "craft," or "skill" from its Greek origin (Gavrilov, 2021.). From this translation, we can infer that technology is, first and foremost, a practical discipline. The term *techne* was originally used by Plato and Aristotle to refer to the capacity to complete a task. *Techne*, according to Plato and Aristotle, is a type of knowledge that may be taught. Additionally, they held that technology encompassed more than just knowing how to perform a task; it also involved comprehending the justification for a particular approach to completing a task.

The term technology was first used in the book *Elements of Technology* by Harvard professor and physician Jacob Bigelow in 1829 (Olsen et al., 2012). Since then, the concept of technology has evolved and expanded to encompass a wide range of tools, techniques, and systems that enhance human capabilities and transform the world around us. Today, technology permeates every aspect of our lives, from communication and transportation to healthcare and entertainment. However, it is easier to identify technology than to define technology. We can attest to the presence of technology as a part of our existential experience, but the ability to articulate it seems daunting. The word technology is thrown around daily, and one begins to wonder what it is. One of the challenges of defining technology is its confusion with the term science. The concept of science is often interwoven with the notion of technology. However, Val Dusek attempts to articulate the concept by sharing three separate definitions of technology. According to Dusek, technology can be defined as the practical application of knowledge and skills to create tools, machines, or systems that enhance our ability to solve problems and

achieve goals. This definition emphasises the practical aspect of technology and how it enables us to improve our lives. Another definition proposed by Dusek is that technology is a cultural system that involves the creation, use, and modification of tools, techniques, and artefacts. This definition highlights the social and cultural aspects of technology, acknowledging its role (Dusek, 2006).

Dusek, in his definition of technology, characterises it into three categories: technology as hardware, technology as rules, and technology as systems. The most obvious way to define technology is probably as machinery and tools. A book about technology will typically feature images of rockets, power plants, computers, and factories to illustrate its points. Technology can be understood as machinery or tools, which makes it tangible and simple to understand. For technology as a rule, the essence of technology is defined by rules and guidelines, or "patterns of rule-following behaviour"(Dusek, 2006). For example, computer software would be considered technology. However, the essence of technology as rules is not only limited to software but any innovative rule-governed configuration, like in the sciences or law. On the other hand, technology as a system refers to the interconnected network of components and processes that work together to achieve a specific goal. This includes not only the physical infrastructure, such as hardware and machinery, but also the organisational structures, protocols, and workflows that enable the smooth functioning of technology. Understanding technology as a system allows us to appreciate its complexity and the interdependencies between different elements within it.

Alawa asserts that technology is derived from *techne* and logos, which refer to fine and applied arts, respectively. However, in the seventeenth century, it was used strictly to describe the discourse and practice of applied arts. But in the twentieth century, it took on a modified meaning that includes tools, machines, ideas, means, and processes. Technology entails the “means or activities by which man seeks change or manipulates his environment." These tools, which were once ideas and concepts, have taken on physical and practical forms (Alawa, 2017).

In summary, technology is any dynamic, continually changing system that consists of both tangible and intangible components and is always adjusting to the demands and needs of society. It is an example of human inventiveness and

creativity that propels development and moulds the world in which we live. Understanding technology as a system helps us to better understand how it affects different parts of our lives and to take advantage of its potential for improvement.

Artificial Intelligence

Artificial intelligence (AI) is the imitation of human intellect in computers. This imitation is designed to accomplish tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation (Russell & Norvig, 2010). Barrat defines AI as a computer or machine's ability to execute commands that ordinarily require human-like intelligence, such as pattern recognition, learning from experience, and adapting to new contexts (Barrat 2023). For Russell and Norvig (2010), the study of AI is not only to understand but also to build intelligent machines. For Nilsson, "artificial intelligence is that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment" (Nilsson, 2009). Artificial intelligence is a machine trying to apply the principles of human cognition to solving real-world problems. Artificial Intelligence aims to replicate human-like intelligence by enabling machines to perform tasks that typically require human cognitive abilities. This includes tasks such as natural language processing, problem-solving, decision-making, and even creativity. By harnessing the power of AI, we can enhance efficiency, accuracy, and productivity in various industries and domains.

Heidegger on Technology

In *The Question Concerning Technology and Other Essays*, Heidegger examines the essence of technology and its implications for human existence. Heidegger explores the effects of technology on our perception of the world, the self, and the relationship between humans and the natural environment. Heidegger's main focus is to examine the essence of technology and its impact on human existence. He argues that modern technology has transformed our relationship with the world, reducing it to a mere resource for human use and exploitation. He asserts that technology shapes our perception, understanding, and way of being in the world. He uses the term "enframing" to describe the essence of modern technology. Enframing refers to how technology influences our perception of the world as a collection of resources to be ordered, controlled, and manipulated for

human use. Enframing distorts the true meaning of existence and the interconnection between humans, nature, and the world, leading to a loss of authenticity and estrangement from the essence of nature.

Heidegger argues that the essence of technology is not inherent in machines but rather in the way they reveal the world. He warns that the distortion of the essence of nature through technology is detrimental to humans. Heidegger turns to poetry, art, and dwelling as he investigates alternative relationships to technology and the world. He contends that we can rediscover a closer bond with the outside world and live more authentically and meaningfully through poetic thought and artistic creation. Dwelling provides an alternative to the technological enframing that isolates people from their surroundings when it is understood as a way of being at home in the world. Heidegger criticises modern technology, especially the prevalence of calculative thinking that reduces phenomena to deterministic and quantifiable components. He contends that this calculative thinking not only restricts our ability to comprehend the world but also lessens the importance of other forms of knowledge like poetic thought and contemplative engagement. In *The Question Concerning Technology and Other Essays*, Martin Heidegger explores the nature of technology and its implications for human existence in a provocative and challenging way. Heidegger urges us to re-examine our relationship with the outside world, nature, and ourselves in light of his critique of contemporary technology and its enframing effects (Heidegger, 1977).

Heidegger's conception of technology first begins with his elucidation of the term *techne*, which he defines as a mode of revealing or bringing forth. Heidegger argues that *techne* is not merely a means to an end but rather a way of understanding the world and our place within it. According to him, technology is not limited to machines or gadgets but encompasses any human activity that involves revealing or bringing forth something previously hidden. He argues that technology is not simply a means to an end but rather a way of understanding and interacting with the world. In this sense, technology is not limited to machines or gadgets but encompasses all human activities that involve revealing and bringing forth. Heidegger asserts that "questioning builds a way," and taking cognisance of this way is an essential part of understanding the essence of technology. The way, according to Heidegger, is a way of thinking perceptibly that also influences

language. The purpose of this questioning is to open our existence to the essence of technology. According to Heidegger, the essence of a thing is not only what it is but also the way it manifests itself (Heidegger, 1977).

Therefore, an apprehension of its essence enables us to experience the nature of technology in its true form. However, he argues that the concept of technology is not the same as the essence of technology. To prove this claim, he starts with an analysis of the term essence. Using the entity "tree" as an example, he says that what is common with all trees is not itself a tree that can be encountered, and this is the same for the notion of technology. This implies that the concept of technology is an abstract idea that cannot be directly encountered or experienced. Instead, it is the manifestation and application of technology in our daily lives that allows us to truly understand its essence. By examining how technology shapes and influences various aspects of society, we can gain a deeper understanding of its true nature and significance (Heidegger, 1977).

Hence, the essence of technology, according to him, is not technological; therefore, we miss the mark if we ascribe the technological to technology. This simply implies that technological artefacts are not a representation of the essence of technology. Instead, Heidegger argues that the essence of technology lies in its ability to reveal and shape our understanding of the world. For him, technology is a means through which we interact with and interpret our surroundings, influencing our perception and relationship with reality.

He considers man enslaved to technology even if we deny it because we see it as something neutral and this singular act blinds us to the real essence of technology. Following the thinking of ancient philosophers like Plato and Aristotle, the essence of an entity is seen as what the entity is and when we ask the question concerning technology we also ask what it is. To address this question, Heidegger considers two common responses to the question of the definition of technology. This first definition considers technology as a means to an end and the second definition considers it a human activity. For Heidegger, these two ways of looking at technology belong together.

Heidegger considers the first definition as the instrumental and anthropological

conception of technology. This for him best articulates modern technology in contrast to older technology. This demonstrates the validity of the assertion that modern technology is indeed a means to an end. However, this definition is still insufficient for Heidegger because it fails to articulate the essence of technology. Using Aristotle's ontological explication of the concept of being, he probes the notion of the four causes to address the notion of essence. These four causes include the material cause (the cause materialis), the formal cause (causa formalis), the end or final cause (the causa finalis), and the efficient cause (the causa efficiens). Together, they constitute the four aspects of causality.

Heidegger in considering the four causes asks why there are just four and not more causes in Aristotle's analysis. He sees further inadequacies in Aristotle's attempt to explain the essence of being using the four causes because they are considered as that which brings things to be. Therefore, we can infer that a silver cup owes its existence to the essence of silver, likewise the essence of a cup in the same vein as its purpose or use to the silversmith. These four modes of being according to Heidegger ensure the manifestation or presencing of the entity that appears before us. They let the entity come forth into presencing and set it free. The four causes are responsible for what Heidegger considers "bringing-forth" into unconcealment and this happens when something concealed becomes unconcealed.

This bringing-forth is rooted in revealing and encompasses the four causes or modes of being. Hence, the notion of instrumentality contains both the notion of technology as both means and ends. He argues that technology itself is not a means but a way of revealing, and if we imbibe this thinking, the essence of technology will open up to us. To understand this revealing, Heidegger confronts the origin of the term technology, from the Greek word *techne*, which refers to both "the activities and skills of craftmanship" and "arts of the mind and fine arts." Hence, from its origin, he infers that *techne* is a way of bringing forth—a mode of revealing. It comes into presence where unconcealment happens. But what does this bringing forth mean for Heidegger? For Heidegger, bringing forth through technology means that it is not simply a tool or instrument that we use to achieve an end, but rather a way in which the world is revealed to us. It is through technology that we come to understand and interact with the world around us, shaping our perception and experience of reality.

Heidegger affirms that modern technology too can be a revealing when our attention rests on its fundamental features. However, modern technology constitutes a fundamental problem in understanding the essence of technology. Modern technology is not considered as bringing-forth but puts an unreasonable challenge to nature. He uses the term challenging-forth in contrast to bringing-forth in his description of the revealing that emanates from modern technology. This challenging is influenced by the idea that modern technology unlocks the energy concealed in nature but this type of revealing never ends. This is because nature cannot be revealed or manifest through modern technology, it should rightly reveal itself.

Heidegger believes that man cannot master technology because it resists any attempt by man to master it, whether positively or negatively. This is thought-provoking because man ought to be the master of Being, but this is a result of enframing. The coming to presence of Being is in tandem with the coming to presence of man. Therefore, the status of the essence of technology must be in alignment with the status of the essence of man as *Dasein*. The essence of man must first be open to affirming the essence and relationship of technology and man. According to Heidegger, technology is not simply a tool or instrument that can be controlled by humans. Instead, it has its essence and autonomy, which resists any attempt by humans to dominate it. This idea challenges the traditional understanding of man as the master of his environment and raises questions about the nature of human existence with technology. To truly understand and engage with technology, man must first acknowledge and affirm his essence as *Dasein*, recognising that his being is intertwined with the essence of technology itself.

For Heidegger, technology is a mode of revealing and not merely an instrument designated as a means to an end. He introduces the concept of enframing to articulate how technology shapes our conception of Being vis a vis reality. The essence of technology according to Heidegger is nothing technological but its true essence is enframing. He repudiates the view that man can master technology, and that technology is a neutral means to satisfying the needs and desires of man. For him, technology is a way of 'bringing-forth'', a way of being in the world that alters our relationship with the world. Technology in his opinion is not something distant or external but an intrinsic part of our existence in the world. It is an

integral part of our engagement with the world and reality. However, his concern about technology was its distortion of reality when it became the dominant mode of revealing. This distortion reduces the world to a mass of quantifiable structures and descriptions that are bereft of authenticity. It has the potential to conceal reality and the true meaning of existence and the fundamental nature of being. Amid these concerns, Heidegger does not outrightly reject technology but he rather calls for a modification of our engagement with technology. He encourages the reassessment of our relationship with technology and a deeper reflection and awareness of how it affects our conception of reality. The questioning concerning technology illustrates his evaluation of the norms ascribed to technology and the need for adjusting our conception of technology and its relationship with human beings.

The Ontological Status of Artificial Intelligence

One of the most overlooked aspects of AI is the notion of its ontology, because a thorough philosophical examination of AI requires an elucidation of its ontological status. The nesting of AI within a philosophical framework requires a clarification of its ontological status. This examination involves understanding the fundamental nature of AI and how it fits into the broader spectrum of human existence. By exploring its ontological status, we can gain deeper insights into the implications and limitations of AI's capabilities and potential impact on society. At the core of ontology is the question of being and existence. Hence, establishing the ontological foundation of AI should be prior to the debate about actual intelligence or the possibility of consciousness in machines.

Ontology is a fundamental aspect of the metaphysical enterprise and deals with the fundamental questions of existence, although these questions seem better suited to animate than inanimate beings. However, pertaining to AI, it is not a question of whether it exists but how it fits in our existential framework. Hence, the move from formal to existential ontology in our analysis of technology as a mode of revealing. We can, therefore, deduce the place of AI from Heidegger's description of technology as a mode of being. Ontology considers what it means for something to be. For Jacquette for something to be, "It is for that thing to have being, to exist, to be present, real, actual, manifest."(2014, 12)

The ontology of AI tries to articulate how this criteria of "beingness" is satisfied without recourse to reductionism. The ontology of AI aims to provide a holistic framework for understanding and representing AI systems. Jacquette considers the question of the meaning of "being" and "existence" as the primary problem of pure philosophical ontology. There are two vital aspects to our assessment of the theory of being in AI, the first is an inquiry to the nature of AI to determine what kind of entity it is. The second is an inquiry into its role in the human existential experience. Therefore, the ontology of AI tries to uncover the notion of being and existence in AI in order to determine its place within the realm of being. Using Jacquette's criteria of being or existence, AI must exist, be present, real, actual, and manifest (Jacquette 2014). The ontology of AI seeks to establish whether AI meets these criteria and can be considered a genuine entity in the world. The purpose of which is to establish AI as a fundamental aspect of human existential experience by articulating its status.

AI machines typically consist of hardware and software, which work together to perform various tasks. The hardware component includes the physical components such as processors, memory, and storage devices, while the software component comprises the programmes and algorithms that enable the machine to process data and make decisions. These machines are designed to mimic human intelligence and are capable of learning from experience, recognising patterns, and solving complex problems. Using this description we can consider AI as a machine or tool created to satisfy our needs. This reduction of technology to a mere tool is what Heidegger kicked against in *The Question Concerning Technology* (Heidegger 1977). He argues that the essence of technology is not inherent in machines but rather in the way they reveal the world.

Heidegger argues that technology is not simply a means to an end; it is a way of understanding and interacting with the world. Hence, technology is not limited to machines or gadgets but encompasses all human activities that involve revealing and bringing forth (Heidegger 1977). The purpose of Heidegger's ontological inquiry is to determine the essence of technology and its role in our experience of the world. In the same vein, we can assert that the role of AI should be a revealing and not a distortion of reality. Instead, human beings have become enslaved to technology, even if we deny it, because we see it as something neutral, and this

singular act blinds us to the real essence of technology.

Heidegger uses the term enframing to describe the way in which modern technologies like AI shape our understanding of the world. Enframing refers to the process by which technology frames and determines our perception, revealing only what is useful or relevant for its functioning. This concept highlights how our relationship with technology can limit our understanding of the world, as it encourages us to view everything through a technological lens and overlooks other ways of experiencing and interpreting reality.

This view can also be extended to AI, because, as part of technology, humans have given AI the power to reveal and bring forth. However, if we continue to view AI as a neutral tool, we risk overlooking its potential to distort our understanding and perception of reality. Therefore, it is crucial to approach AI with some level of apprehension, recognising its capacity to shape our perception and actively questioning its role in our experience of the world.

Implication of Heidegger's Notion of Technology on Artificial Intelligence

Heidegger's notion of technology holds the following implications for AI: it challenges the prevailing view that technology is a neutral tool, highlighting instead its role in shaping our understanding of the world. Heidegger's perspective suggests that AI should be approached with caution, as it has the potential to further distance us from our authentic existence and connection with nature (Heidegger 1977). By subjecting ourselves to AI, we further alienate ourselves from nature, reality or being. This estrangement from being is equally an estrangement from ourselves as *Dasein* or beings-in-the-world.

Heidegger believes that man cannot master technology because it resists any attempt by man to master it, whether positively or negatively. Heidegger says that technology is not simply a tool or instrument that can be controlled by humans. Instead, it has its essence and autonomy, which resist any attempt by humans to dominate it (Heidegger 1977). This idea challenges the traditional understanding of man as the master of his environment and raises questions about the nature of human existence with technology. To truly understand and engage with AI, man must first acknowledge and affirm his essence as ***Dasein***, recognising that his

being is intertwined with the essence of technology.
Heidegger's concern about technology was its distortion of reality when it became the dominant mode of revealing. This distortion reduces the world to a mass of quantifiable structures and descriptions that are bereft of authenticity. We can say that AI has the potential to conceal reality, the true meaning of existence, and the fundamental nature of being. This distortion is evident in the way AI algorithms prioritise efficiency and data-driven decision-making over human values and subjective experiences. In addition, the increasing use of AI-generated content like videos, images, and texts has the potential to further blur the line between what is real and what is artificially created. As AI becomes more advanced, it becomes increasingly difficult to discern whether the content we consume is genuine or fabricated.

Amid these concerns, Heidegger does not outright reject technology but rather calls for a modification of our engagement with technology. He encourages the reassessment of our relationship with technology and a deeper reflection and awareness of how it affects our conception of reality. The question concerning technology illustrates his evaluation of the norms ascribed to technology and the need for adjusting our conception of technology and its relationship with human beings. By reevaluating our relationship with technology, Heidegger believes we can regain a more authentic and meaningful existence.

Conclusion

Although Martin Heidegger does not directly address AI in his works, his ideas on ontology and the nature of being can still offer valuable insights into the philosophical implications of AI. As technology continues to advance, there is a need for reflection on the potential impact of AI on human existence and consciousness. Heidegger's emphasis on the importance of human agency and our relationship with technology can help us navigate the ethical and existential questions that arise with the development of AI. His understanding of being suggests that our perception of being is shaped by our interactions with the world, including technology. In relation to AI, we can consider how our relationship with intelligent machines may alter our perception of what it means to be human and the ethical responsibilities that come with it. Heidegger's critique of modern technology as a means to an end rather than a way of revealing truth raises

questions about the potential dehumanising effects of AI and the need for thoughtful integration into our lives. The purpose of technology for him is to uncover being or reality. This uncovering of being or reality is hindered when technology is reduced to a mere tool for efficiency and productivity. AI, as a form of advanced technology, has the potential to further distance us from our authentic existence. therefore, it is crucial to approach the integration of AI with careful consideration for its impact on our understanding of being human and the ethical implications that arise from it.

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