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IN PRAISE OF NORMATIVE SCIENCE: ARTS AND HUMANITIES IN THE AGE OF ARTIFICIAL INTELLIGENCE

[1]Helen Titilola Olojede, PhD
Department of Philosophy, National Open University of Nigeria Abuja, FCT
[2]Etaoghene Paul Polo
Department of Philosophy, University of Delta, Agbor, Delta State, Nigeria

Abstract: *The advent of Artificial Intelligence (AI) and other digital technologies is touted as ushering in the fourth industrial revolution (4IR). 4IR, also known as 'Industry 4.0,' pertains to the burning internet connectivity, sophisticated analytics and production, and automation's transformative impacts on the world. The surge of change in the production arena started in the second half of 2010 and has continued to increase astronomically, with a remarkable probability of shaping the future of manufacturing and humanity. The 4IR is thus heralding areas such as digitalisation, artificial intelligence, cloud computing, robotics, and 3D technologies amidst many other innovative digital technologies following the first, second and third industrial revolutions. The problem this paper addresses is the role of Arts and humanities (A&H) in the era of AI. Should A&H imbibe the empirical science methodology to stay relevant? How does A&H contribute to 4IR? Leveraging on philosophical tools of arguments and reconstruction of ideas, this paper argues for the significance of Kant's thoughts in The Contest of the Faculties and that Arts and humanities are instrumental to humanising science and technology, helping to shape interdisciplinary collaboration and fostering understanding of the ethical, social and cultural dimensions of AI.*

Keywords: *4IR, AI, Arts and Humanities, Kant.*

Introduction

The dividends of science and technology that AI represents seem to easily cast aspersions on the role and relevance of the arts and humanities in the fourth industrial revolution. This paper thus discusses the emergence of AI and its capabilities. It further analyses the 4IR, detailing it from the first revolution until the present and the significant role AI plays in shaping the 4IR. It equally examines the Arts and humanities' roles in a technological age, emphasising their cultural, ethical, and normative values in humanising technology. This led to a focus on the specific role of philosophy in the context of the Fourth Industrial Revolution. Philosophy, with its second-order nature, acts as a watchdog on other disciplines' activities, ensuring that the ethical, social, and cultural dimensions of AI are not overlooked. The paper equally analyses how Immanuel Kant addressed similar conflicts of disciplines in the modern era, that each faculty has unique values. Hence, there need not be a conflict of whatever kind.

An Overview of Artificial Intelligence (AI)

The concept of Artificial intelligence (AI) was first used in the 1950s to refer to a machine's ability to perform tasks humans perform based on their intelligence. Such machines include self-driving cars, robots, ChatGPT or other AI chatbots, and artificially created images (Diaz, 2023). Other examples of AI are expert systems, natural language processing, speech recognition, and machine vision. All of these are designed to act like humans. Following this, we can construe AI as machines imitating human intelligence, especially computers (Burns, Laskowski, and Tucci, 2023). Thus, artificial intelligence, also known as machine intelligence, is smartness shown by machines, as opposed to the natural intelligence shown by humans. In the view of Saleh (2019), AI is intended to perform tasks such as speech recognition, learning, planning, and problem-solving. It can also handle perception, language comprehension, and logical reasoning.

Expressed in different terms, AI is the automation of activities like decision-making, problem-solving, or learning, all of which are naturally associated with human intelligence (Bellman, 1978). It thus mimics human intelligence by executing tasks or behaving similarly to humans (Selçuk, 2020). It refers to the ability of computers or robots to do things that only intelligent beings like humans would do ordinarily (Copeland, 2023). According to Nwakunor (2021), AI includes robots that are controlled by computers and think intelligently like humans. Robots of this nature are intentionally invented to act like humans and are controlled electronically with computers.

The advancement of AI is rapid as it is being utilised in various applications, ranging from autonomous vehicles to personal assistants such as Siri, Alexa, and Google Assistant and non-player characters in video games (Selçuk, 2020). It has inspired rapid changes in all industries, including finance and healthcare, with the implications of a new system of living and working (Malik, 2024). AI is gradually becoming an undetectable part of our lives in different ways (Riedl, 2019). It seems to make things much easier and faster, thus minimising the intervention of humans, and sometimes with the potential to replace humans in specific repetitive tasks.

Some traits of AI similar to those of humans include:

a. Predicting and adapting: AI is characterised by inbuilt systems that can discover insights from available information. These insights are eventually used to predict or adapt to possible occurrences.
b. Making decisions independently: By providing valuable insights from available information, AI can support human intelligence in decision-making, improving productivity.
c. Continuous learning: AI uses systems that seek to achieve an aim or solve a problem by trying different methods and learning from mistakes at every point.
d. AI is forward-looking: AI could help people make better decisions by enabling them to reconsider their analysis and integration of information.
e. AI is capable of movement and observation (Saleh, 2019, 4).

From the foregoing, artificial intelligence is displayed by machines, devices, or apparatuses, usually imitating natural human intelligence. It performs tasks or exhibits attributes (traits) ordinarily typical of humans.

The Fourth Industrial Revolution (4IR) in Brief

Revolutions can be defined in numerous ways, each emphasising distinct aspects. For Samuel Huntington (1996), a revolution is a swift and forceful alteration in a society's core and prevailing values, impacting its political institutions, social structure, leadership, and governmental actions and policies. Revolutions can also be characterised as swift shifts or transformations within a society, state, and class hierarchy, sometimes driven by class-based uprisings (Skocpol, 1979). Typically, revolutions seek to alter a political regime through unofficial methods, including mass demonstrations, protests, strikes, and acts of violence (Jack, 2001).

Despite varying formulations and presentations, the definitions above suggest that a revolution entails a sudden and profound transformation (Schwab, 2016). Whether gradual, abrupt, or radical, revolution is a political, social, religious, cultural, scientific, moral, and health structure change. We refer to the advent of a new order or structure by revolution. In other words, we say a revolution has occurred when an old regime ends because of the emergence of another. Moreover, the change implied by revolution can be for better or worse and with inherent consequences and realities.

The fourth industrial revolution, therefore, is usually described as a contrast to the first, second, and third industrial revolutions. From about 1760 to around 1840, the first industrial revolution was marked by the construction of railroads and the invention of the steam engine. It introduced humanity to mechanical production, and since this involved so much human effort, production was minimal. In the late 19th and early 20th centuries, the Second Industrial Revolution began with the advent of electricity and assembly lines. This era fostered mass production, thus signalling a significant leap from the first industrial revolution. In the 1960s, the third industrial revolution dismissed the second using the development of semiconductors, mainframe computers (1960s), personal computers (1970s/80s), and the internet (1990s). Since computers and other digital technologies were invented during this period, the third industrial revolution is commonly called the computer or digital revolution (Schwab, 2016).

We are in the fourth industrial revolution, which is presumed to have started around the second half of 2010 and early 2011.The term 'fourth industrial revolution (4IR)'or 'Industry 4.0' (Bai *et al.*, 2020) is a slogan that describes rapid technological advancements dominating the 21st century. It was made famous in 2016 by Klaus Martin Schwab, founder and executive chairman of the World Economic Forum (Park, 2016). However, Schwab himself has noted that the term 'Industry 4.0' was coined in Germany at the Hannover Fair in 2011 to describe the revolutionising of the organisation of global value chains (Schwab, 2016).

As Schwab averred, the rapid changes brought about by technological advancements in the fourth industrial revolution show a significant shift in industrial capitalism (Philbeck & Davis, 2018). Thus, the increase in capitalism is one of the characteristics of the Fourth Industrial Revolution. Furthermore, the fourth industrial revolution started in this century and builds on the digital revolution. 4IR is mainly defined by the widespread and portable nature of the internet, the availability of small yet powerful and affordable sensors, and advancements in AI and machine learning (Schwab, 2016). In other words, the fourth industrial revolution is characterised by the rapid transformation of societies and the global economy through advanced and interconnected digital technologies (Schwab, 2016).

There is more to the fourth industrial revolution than we presently imagine. This is a view expressed by Schwab. According to him, unlike the previous industrial revolutions, the fourth industrial revolution is the most widespread. The fourth industrial revolution is not just about smart and connected machines and

systems. It is a lot more extensive. Within the fourth industrial revolution are advancements in several areas, ranging from gene technology to nanotechnology and renewables to quantum computing. The fourth industrial revolution combines these advancements and their interaction across the physical, computerised, and organic spaces. These factors distinguish the fourth industrial revolution as uniquely different from the first, second, and third industrial revolutions (Schwab, 2016).

In addition, in the fourth industrial revolution, technological advancements spread faster globally, reaching a wide number of users within a very short period, unlike the past industrial revolutions, which are still being diffused to some parts of the world. For instance, the fourth industrial revolution is climaxed by the internet, which is reputed to have circulated globally in less than a decade. The spindle, one of the inventions of the first industrial revolution, is reputed to have taken almost 120 years to spread outside Europe. Meanwhile, up till this moment, about 17% of the world's population are yet to fully experience and adapt to the second industrial revolution, as almost 1.3 billion people currently have no access to electricity. Similarly, the third industrial revolution also faced challenges, as approximately half of the global population—around 4 billion people from developing countries—still lack access to reliable internet (Schwab, 2016).

Put succinctly, the fourth industrial revolution is unique and sharply different from the previous industrial revolutions because it is broader in scope and is characterised by highly sophisticated digital technologies, which usually spread rapidly across the globe. Digital technologies in this regard include but are not limited to implantable technologies, biochips, social media, wearable internet, ubiquitous computing, pocket-size supercomputers, portable storage devices, the internet of and for things (IoTs), the connected home, smart cities, big data for decisions, driverless cars, artificial intelligence, robotics, bitcoin, blockchain, cryptocurrencies, 3D printing technology, and cloud computing.

The numerous advancements in the fourth industrial revolution have greatly revolutionised virtually every sphere of human endeavour, including education, economy, politics, religion, health, agriculture, communication, welfare, finance, security, and industry (production and manufacturing). Artificial intelligence (AI), one of the chief innovations of the fourth industrial revolution, currently permeates all aspects of human life, so there is hardly any area where AI's application is not germane.

What is The Role of Arts and Humanities (A&H) in the Era of AI?

Source: Designed by H. T. Olojede

Since AI is, by nature, a scientific cum technological invention, it is quite out of place to think that science rules the world. Because the contributions of arts and humanities are more subtle, the danger emerges of thinking that arts and humanities play lesser roles in the 4IR.Thus, one could ask: 'What is the role of arts and humanities in the era of AI?' or 'Do arts and humanities contribute to the fourth industrial revolution? If yes, how?

Arts and humanities refer to fields of inquiry committed to studying the overall living conditions of humans, including culture, custom, tradition, belief, language, diet, and lifestyle. Arts and humanities aid us in expressing and communicating our ideas, emotions, and values through various forms of creative and artistic expression (Stefan, 2023). They include but are not limited to disciplines such as Philosophy, Sociology, Psychology, Anthropology, Cultural studies, Religious studies, History, Literature, Linguistics, Law, Classics, Communication studies, Visual art, Fine art, Performing art, Area studies, and Geography.

The arts and humanities help engage with AI's ethical, social, and cultural implications, such as its impact on human values, rights, interests, aspirations, dignity, identity, and creativity. All these questions can be adequately dissected and addressed through the lens of the Arts and humanities (Stefan, 2023). Concisely, the Arts and humanities provide us with an understanding of/and valuable insights into all the dimensions and implications of AI, including the historical, ethical, social, and cultural dimensions and implications of AI. More so, the Arts and humanities can help us challenge AI's deterministic and technocratic narratives. They also provide alternative ideas and perspectives that challenge mainstream views about AI.

Further, the Arts and humanities foster interdisciplinary collaboration and dialogue on AI. Usually, several advancements in technology occur due to the intersection of disciplines. Innovative solutions, which often

arise when technologists and scholars collaborate, are a perfect testament to this. For instance, digital humanities and computational social sciences employ technology to analyse and understand human culture and behaviour in ways that were impossible hitherto (Clarke, 2023).

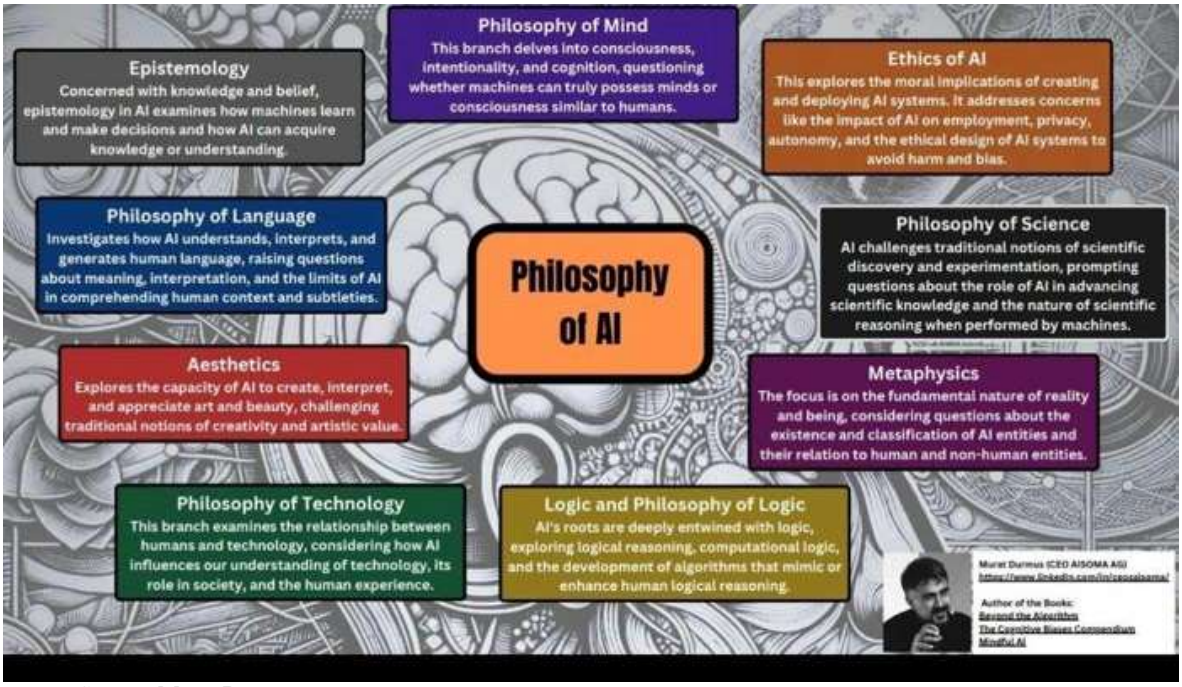
Through the Arts and humanities, we ponder critically on various ethical presuppositions and prejudices that may interfere with our perception of AI (Stefan, 2023). By furthering our understanding of issues pertaining to AI, Arts and humanities are equally contributing to the 4IR since AI itself is a characteristic hallmark of the 4IR. Another role Arts and humanities play in the age of AI is the humanisation of science and technology. Essentially, the Arts and humanities humanise science and technology in the following ways:

a. The Arts and humanities provide the ethical, cultural and human context that complements and enriches technological innovation.
b. The Humanities provide a framework for discussing and understanding the ethical implications of technology, helping us make informed decisions about its use.
c. The Arts and humanities emphasise human experiences, emotions, and preferences. This fosters the creation of user-friendly, accessible and enjoyable products.
d. The Humanities provide useful insights into the historical, cultural and social contexts in which technology is developed and used. This helps scientists and technologists avoid cultural insensitivity, create useful products to diverse audiences, adapt technology to suit different environments and create AI systems that are not only intelligent but also more empathetic and aligned with human values.
e. Effective communication about technology must exist before any technology can be adopted successfully. The Arts and humanities foster communication skills, allowing technologists to explain complex concepts to non-experts and advocate for their work in ways that resonate with a broader audience, including policymakers and the public.
f. The Humanities encourage critical thinking, which is invaluable when assessing technology's potential benefits and risks.
g. Creativity and innovation are at the heart of technological advancements. Exposure to Arts and humanities can inspire technologists to develop ground-breaking inventions and novel approaches to problem-solving (Clarke, 2023).

In a nutshell, by saying that the Arts and humanities humanise science and technology, we imply that the Arts and humanities are highly instrumental in instructing people in this fourth industrial revolution age on how to approach and apply science and technology in manners that will help minimise risks, while maximising the benefits of science and technology for the well-being of humanity.

The Role of Philosophy in the Age of AI

The second-order nature of philosophy emerges more strongly in the age of AI, given the various ways certain core branches of philosophy and some of its sub-branches help to interrogate, shape, sharpen, and recommend the regulation of AI.



Source: Murat Durmus

Beyond the normative role of philosophy in AI, in his work published in 1798 titled *The Conflict of the Faculties,* Immanuel Kant passionately appealed for an end to the subjection of 'lower faculties' in the universities at the time to 'higher faculties.' The lower faculties, on the one hand, were those involved in the study of natural sciences, humanities, and philosophy that could offer masters degrees; the 'higher faculties' on the other hand, were those that pertained to theology, law, and medicine and they were those who offered doctoral degrees (Kant, 1798). The Church or the State controlled the higher faculties, similar to how, today, religious practices, law, and medicine are still somewhat overseen by clerical or secular authorities, which regulate professional conduct and practices. Later in the eighteenth century, when there was attempted interference with Kant's 'Religion within the Boundaries of Mere Reason,' Kant argued that there ought to be freedom of research in the lower faculties, who were fundamentally positioned to pursue pure scientific research instead of professional qualifications. His resistance to the interference in his writings and the subsequent appeal was instrumental to the intellectual climate that led to the establishment of Friedrich Wilhelm (later Humboldt) University in Berlin in 1809. Aside from contributing to legitimising institutional freedom to research, lower faculties were given the freedom to float doctoral degrees by the university.

It is important to note that the distinction between higher and lower faculties is not one of degree but one of a kind. The reason philosophy and humanities are among those categorised under lower faculties, according to Kant, despite their huge advantage (freedom), is rooted in human nature. This is because anyone who gives commands, despite being a servant of another, is perceived to have more respect than a free person who commands no one**.** Lower faculty is the level within the university setting that concerns itself with teachings, not from the directive or command of a superior authority. The lower faculties thus enjoy the freedom of thought. The higher faculties are so-called for this reason. Instinct makes humans value the physician more because the physician makes human life longer. The jurist comes next to the

physician because the jurist can recover properties. The clergy comes last, probably on the deathbed, because of the hope of an afterlife for the soul.

The point is that the conflict of relevance of various disciplines is an agelong one that Kant addressed in the eighteenth century. More importantly, empirical science and its attendant technological developments in the age of AI need not evoke conflict of the relevance of one set of disciplines over another. More concretely, the role of Arts and humanities has become more amplified as a gadfly that guides technology, not to destroy humanity and erode human values.

Philosophy, with the Philosophy of AI, has been living up to its 'second-order' role. It addresses issues foundational to the Philosophy of mind and beyond. For example, the ethics of AI involves inquiries into the ethical consequences of developing and deploying AI systems. It poses critical questions: What values and principles should guide AI? What is the impact of AI on privacy and autonomy? How might we combat the harm, risks, and bias in AI systems? Further, the philosophy of technology explores the relationship between humans and technology, how AI influences how we understand technology, its role in society, human experiences and its impact on employment. These roles attest to Kant's assertion that:

> a university must have a faculty of philosophy. Its function in relation to the three higher faculties is to control them and, in this way, be useful to them, since truth (the essential and first condition of learning in general) is the main thing, whereas the utility the higher faculties promise the government is of secondary importance (Kant, 1798:45).

Conclusion

We have established the role of the Arts and humanities in the era of AI, which is one of the core characteristics of the 4IR. Now, considering the dominance of science in our current age, the Arts and humanities can only succeed if they follow the methodology of science. Interestingly, this is not the case. From the above articulation of their crucial role in humanising science and technology, it is logically correct for us to conclude that the Arts and humanities do not have to imbibe the methodology of empirical science to stay relevant. If the Arts and humanities were to follow the methodology of science, they would eventually lose their uniqueness and totally become unable to substantively discharge their duty of humanising science and technology. More so, if the Arts and humanities imbibe the methodology of science, we will eventually lack variety in academia, as only science will become the order of the day, and this will undoubtedly have fatal implications for the survival of humanity in this highly scientific fourth industrial revolution age.

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