

The Concept of AI and Selfhood (Personhood) in African Thought System

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Abstract

The emergence of artificial intelligence (AI)-a set of technologies/machines inspired by human but operate quite differently from the way human being operates, has silenced the African ‘self’, (personhood), which ought to be the basis, by which an African person is defined in relation to the physical world. There is a high level of defamation of personhood and personal identity, as the imported machines and the likes are gradually taking over the African homes, industries, banks, schools and restaurants. The involvements of the so called technologies or machines have resulted to unemployment and redundancy in the ingenuity of Africans. Owing to this, the cultural values of the African people are depreciating in a tremendous lip, and gradually being replaced with the Western cultural values and technologies. This paper argued that adhering to artificial agents, as models of doing things in Africa, will lead to cultural homogenization. Conclusively, as the positivity of AI cannot to be ignored in the national development, its negativity that is capable of making the African ‘self’ (‘personhood’) redundant cannot be toyed with. This paper calls for Africanization of these artificial agents and repositioning of the African ‘self’ that is tremendously fading away, using complementary method.

Keywords: Artificial intelligence, Selfhood (Personhood), Homogenization, Personal identity, Africanization

Introduction

The invention of artificial intelligence (AI) has threatened the cultural values and organizational identities of human beings in various ways (Gray 2016, Davies and Fidler 2011). It has equally increased unemployment rate, diminished human relations at the work place (Campa 2014). When AI succeeds in demolishing organizational identity, and replaced human workforce, there will be a serious threat and change in the job structures and managerial systems within organizations or companies (Boronea and Atansiu 2010). This may equally lead to a change in both leadership and alteration in the compensation, welfare and decision making of organizations (Sarangi and Srivastava 2012 and Ashforth and Mael 1989). If this becomes the case, the organizational ideology

that ought to control managers and employees will be thwarted; hence, the working motivational culture that binds them together is completely shaking (McBain 2003). This was corroborated by Price and Vandick (2012) who maintain that organizational change affects and diminish relations between employees and their organizations. Furthermore, the traditional working knowledge of an average African is tampered with, as AI keep waxing stronger or gaining momentum within the African metropolis (Smith 2018). Due to this problem, there is a high rate of youth unemployment in the North African and Arab countries (Wisskirchen et al 2017). In their further illustration;“for every older employee in Uganda, Mali or Nigeria, seven younger employees will enter badly structured labour market”. By implication, within the purview of these countries under discussion, only few of the younger generation is in employment and most of the so called jobs have little or no security. The reason for this is that the Western cultural values are quite different from the African cultural values (Wisskirchen et al 2017). So, what works for the West may not necessarily work for Africa, hence, both have cultural dissimilarities.

However, counter arguments have been made to correct some of the impressions the above mentioned scholars have about artificial intelligence (AI). Balogun (2013) in trying to show that the invention or emergence of artificial intelligence (AI) or experts system (ES) in dealing or expanding the scope of knowledge has brought a lot of development to mankind, especially for past recapturing and future recollection, avers that with the emergence of digital computer, one of the branches of artificial intelligence, works can now be performed or carried out with little or no stress, knowledge can be stored and be rest assured of its safety unlike the knowledge stored in human memory that can be easily forgotten or reproduced inaccurately. According to him, when information is saved in a computer memory, it becomes difficult if not impossible to be forgotten. As a matter of fact, artificial intelligence (AI) is essential for past, present and future memorization and development. Imagine a world without artificial intelligence systems (AIS) or automated agents (AA). It would have been calamitous and ill-omened. In other words, it is hard to dream or hallucinate of a time before a digital world, absence of World Wide Web (Bryant 2011). No one would want to experience what happened, say 60 years ago, when there was nothing like “visual communication via televisions, and when the only way to communicate long-distance was through letters” (Briggs and Burke 2010). There were series of problems during the era under discussion. As the said letter (s), which was the only means of reaching those far away, got delayed or misplaced before reaching the recipient (s).

Nielson (2016), on the importance of AI to human development, captures that GPS can today be reckoned with to figure out the safest and smartest route, and possibly use to guess the real-time one could get to his destination. This was not obtainable in the analog era. In the analog era, one can barely predict accurately the time and route he could take to get to the next pole outside his/her present location. More so, Nielson on the significance of AI observes that there are self-driving cars in the world today. And these self-driving cars have made many not to suffer while driving anymore. In this model of cars, one need to just sit in the car, and within a twinkling of an eye, get to his destination, without directly involved in the car operation or driving. In fact, AI attempts in many occasions to override or outsmart man in dealing or carrying out some tedious tasks that seem to be difficult, if not impossible, for man. ByNo wonder why Alan Turing

(1950) in defense of digital computer, insists that “the limit to algorithms does not necessarily imply that human mind is smarter than that of machine (11). The human intellect is not without some limitations too. Therefore, in as much as it is admissible that some men are cleverer than machine, there might be other machines cleverer again and so on .Descartes frowns at this comparative analogy made by Turing on the human mind and AI. This is because his analogy is not in consonance with the Descartes dualistic argument. Descartes, in line with his methodic aphorism “I think therefore I exist or I am” maintains that man has both physical and intellectual capacities. Under this dualistic ambience or aspect between the body and mind presented by Descartes, it becomes evidential to holistically prove that machine and human mind cannot be comparable. As human mind performs the duty of thinking, machine does nothing but simply imitating (Hardt 2016). It is on this note that human will always be human and machine always machine and not any other thing else.

More so, in spite of these benefits of AI, it is of great importance to note that it is not without shortcomings. It affects the self (personhood) in African thought system(Smith 2018).With the existence of AI, the cultural value (s) of human person, especially in Africa is tremendously depreciating-leading to brain drain and homogenization (Wisskirchen et al 2017).The works that are meant for the human beings are today taken over or handled by machines. Due to this, the African personhood is being played upon (Campa 2014).This is the problem this paper sets out to tackle or the reason for the alarm. The African ‘self’ or personhood which ought to be active is currently made redundant. If this continues, the technological enlightenments that are derived from the digital domain will be singularized (Smith 2018). That is to say that there will be a forceful movement from enlightenment to singularity. This paper maintains that instead of naturalizing African culture, that is, making African culture scientific, without any consideration of African traditions, norms, customs and values, African culture should rather be humanized. The invention of the artificial agent (s) (AI) should not make people forget their intellectual capabilities, historical and ethical backgrounds. This is because human beings are the intellectual brains behind their operations, while they are the supporters or artificial muscles. Conclusively, AI is seen in Africa as that that can diminish traditional working knowledge and skills, and play down on the African selfhood. Owing to this fact, the paper recommends the need to Africanize or marriage of the so called AI with the African culture (s), for protection and sustainability of African cultural values and personhood.

Hunan development amidst Artificial intelligence (AI)

The idea of artificial intelligence (AI) has been both apocalyptic and utopic. For many, AI is an algorithm introduced to destroy and take over the available jobs from the hands of the workers. While others saw it as a transformative technology invented to make life easier and favorable for mankind. In fact, for this group of people, any attempt to put artificial intelligence (AI) into extinction will definitely hamper and toy around with the “life made easy of human being”. According to Muro et al (2016), AIhas “the potential to be beneficial in spite of its disruptiveness and censorship.” Its potentiality and benefits can be found within the ambience of economic, agricultural, political, educational and healthcare activities (Nils, 2010). Generally, automated machines or

digital systems have been seen as that that is effective, accurate and reliable. They are capable of enhancing human activities. This is why a good number of people prefer to associate with artificial intelligence systems (AIS), especially in dilemmatic situations to human beings. The lingering questions over the above mentioned systems are: 1.what is the fate of human beings as regards to their personhood and identities amidst AIS? 2. Is it not going to be disastrous to the norms and cultural values of the people? 3. If AI or the related systems is allowed to operate in all facets of human endeavours, what becomes of the economy of the countries that do not have access data for it? To answer this question, Nils (2010) maintains that any country without access to data in this technological era will crumble, hence, “the economic benefits of AI are mostly dependent on the strategies and data providers of a given country”. This, without further consultation, implies that AI thrives in developed countries than in developing countries.

Hence, there are already established scientific structures in developed countries while the developing countries are in a struggle to first understand what AI is and how it operates digitally. Outside the clamour for the digital or operational knowledge of AI, the developing countries worry also about the requirement (s) and how it can be sustained, giving the fact that they already have other ways through which they add to their productivity. Apart from the economic pros of AI, we have healthcare benefits of it. Durairaj and Ranjani (2013) corroborate this when they aver that “data mining and analysis capabilities of advanced computer have the potential to improve and bring about development to the healthcare planning”. AI can also be used in other sectors of life such as transport, military, restaurant, research, commerce, education, security, labour, etcetera (Luxton, 2014).Owing to this fact, and many other engagements of AI, many have argued that robotic nanny is preferable to human nanny. For them, robotic nannies give them more satisfaction in taking care of their children than human nannies. They do not tell lies or maltreat their children in their absence and they are capable of working 24/7. Again, the children in question are comfortable and do not complain, in terms of the features of robotic nannies, as they have “the anthropomorphic shape or resemblance with human” (Torres 2015).With this, children find it difficult to differentiate between robotic nannies with the real human beings

Moreover, Segun (2020), pictures robots as caregivers, whose judgment will not be stupefied or strained by stress like human caregivers. They are capable and ready to execute their duties at every point in time. These demonstrate the power of robots and their advantages over humans. The efficiency of robot is hardly disrupted unlike human that can break down or fall ill, apply for maternity or annual leave, involve in strike and bribe, from time to time, either to protect his/her job or to dubiously enrich his/her pocket. Generally, robots or other related artificial intelligence algorithms (AIA) can work in dangerous zone with little or no interference. With all these pros of AI and the likes in mind, there have been questions such as 1. What is the place of human being in this era of artificial agent? Is there any difference between artificial agent and human being? What becomes of human endowed industrial capabilities in a world of artificial intelligence systems? The above questions will be addressed in the next section where a comparative analogy will be made to establish both the point of convergences and divergences between AI and African personhood (selfhood).

Personhood/Selfhood and Artificial intelligence: A Comparative Analysis

The clarion call to distinguish African personhood/selfhood (AP/S) and artificial intelligence (AI) becomes imperative for so many reasons: first, many are convinced that artificial agents can work effectively with little or no human assistance. The second reason is the fact that scholars like (Nielson 2016, Turing 1950 and Nils 2010) argued that machines are more coordinated and beneficial than human beings. This is false, to an extent; coordinated, beneficial and reliable in terms of calculation, trustworthiness and trust wordiness, fine, but to claim that machines are more beneficial is incorrect. “When did Facebook likes, Twitter posts or Instagram followers determine happiness?” (Bruno and Malmdorf 2014). It may be beneficial to human being, but cannot be more beneficial than human being. The third reason is not farfetched from what an average user of artificial agents (AAS) could think of. There has been this notion that with the digital algorithms such as android or smart phones, computer and the likes, one can connect the world within a twinkling of an eye.TED and Bostrom (2015),in line with the above assertions insist that it is a misconstruction to still rely on the ignorance that human beings are superior and smarter than the artificial agents. For them, the claim that human beings are superior, more intelligent and the smartest has come and gone, due to the fact that there are tons of what the artificial agents can do which human beings cannot. They can lift heavy objects, and can carry out their duties, diligently, effectively and efficiently, while humans struggle always if not ad infinitum, in a bid to avoid error(s), in performing their duties.

This kind of mentality is the reason for the negligence of the ‘selfhood’, which ought to be considered alongside with the artificial agents, in order to boost the workforce in and beyond African place. As mentioned somewhere in this work, there is need for Africanization or marriage of human and artificial intelligence in Africa, to avoid homogenization of the African culture (s) with that of the West and defamation of the African ‘selfhood’. The point here is to demonstrate that the said digital systems (DS) are not perfect or cannot work alone as presented by TED and Bostrom. Both must complement each other, for effective and efficient results. With this in mind, the idea that artificial intelligence is better than the ‘self’ is incorrect and erroneous. Any attempt to elevate machine above human being or compare the rationality of the both will definitely lead to a category mistake. What does this mean; a category mistake is committed when there is an unclear mixture of identities. The difference between human being and machine can be traced under the ambit of the notable endowments of the both parties. As human being has some unhidden similar physical features, machine is nothing but an object of shape and forms. Human being has moral probity, integrity, rights and obligations to protect but machine does not. If these issues about machines and human beings are not handled with care, the love for one another, which is gradually going into a thin air, because of corruption, politics, quest for money and unnecessary envies, will be aided to a journey of no return. In other words, when machines are accorded or given or placed in the same scale or above human beings, the polarized and bifurcated mentality, often demonstrated by humans, will in a tremendous lip, destroy the interrelationship and interdependency that supposedly exist among human beings. The historical or cultural values, customs and traditions of human being as human being or human person will be eroded too. Artificial agents are ancillary agents that cannot thrive or successfully operate

without human beings, who are the “makers and finishers”, and who determine their operational strategies and digital functions.

In answering the question raised by Turing (1950, p1); is a machine capable of replicating or simulating human thinking, such that a human judge would hardly differentiate it from human? Put differently, does a machine have human attributes that cannot be easily separated from that of human beings? Hardt (2016), states that it is needless to ask or compare human traits or features with machines, since they do not have any biological origination or backup. For him, therefore, they are not humans, and so, cannot be compared or examined using human qualifications and principles. This has not completely answered the perturbing question under review. It has rather begotten another question: what makes a human, a human? Is it the brain or the body or both? A scholar like Descartes would prefer to choose brain to body. But this decision is not without a follow up question: If being human is all about brain and not body, what happens to a complete human with a decomposed or dead brain. Can we now say that the person is not a human person just because he/she is neurologically impaired? If the answer is in affirmative; what about the lunatics or those suffering from brain turmoil? Can we possibly deny that they are not humans or persons just because a part in their selves orchestrated by known or unknown circumstances is missing or malfunctioning? No. In as much as there is an acceptance or admission that “thinking” is an important element of a human person, especially when we are trying to distinguish between “self” and “no self” or “being” and “non being”, as it is the case here, we must at every point in time, recognize the fact that the brain cannot possibly exist without the body or the body without the brain. Nevertheless, this Descartes’ position to the Turing’s test or question is a good one, hence, artificial agents cannot think, and because they cannot think, they cannot be regarded or seen as human beings’ rivals. If anybody eventually get dammed or inflicted any injury, robbed or killed by the so called digital agents in the future, as many had projected or predicted, the agents should be exonerated because they can only be hacked for such actions; they do not have the required brain to execute such cognitive tasks.

More so, Heidegger (1978, 314) elaborating on the difference between AI and personhood argues that a person (*Dasein*) has the capacity to determine or know how death looks like using his/her present life. This is due to the fact that there is “an authentic existential relationship between being and non-being”. In fact, *Dasein* relates with the non-being as a result of his love for call of conscience amalgamated or cobwebbed alongside with his call of care. Machines or AIS do not have the knowledge of love, even though; they exhibit love, in their relationship with humans. Oliver Bert (2017) solidifying Heidegger’s idea of *Dasein*, bring to bear, an irreducible difference between human and AI. According to him, “human are mortal but robots do not die and do not have to find meaning in their lives”. It is meaningless and nonsensical, therefore, to keep attributing or assigning human qualities to AI, hence, it is a constructed robot that has no knowledge of human feelings and values. No distinctive ontological traits of human beings or ethics of care. In contrary, Turkle (2010) contends that there are therapeutic robotic pets, which are made or programmed specifically to show affection in certain areas of life. However, what Turkle could not handle is how the so called robotic pets can demonstrate their love to those that are susceptible to cartoon like elements. With this, robotic pets are therapeutic only to those who are comfortable with imitation

than original. To expect more from the AIS less from human beings can be dangerous to life, relationship, culture and selfhood, and consequently leads to homogenization of African thought systems with that of the West. More will be discussed in respect to this in the next subsection

Artificial intelligence (AI) and Redundancy in the African Traditional Working Skills, Cultures and Selfhood

The rise of “Big Data” experienced over the past decade and the sudden development of artificial intelligence (AI) has ushered in both hopes and fear about the fate of humankind. Letouze et al (2018) once asked: in the fourth industrial revolution; are we heading towards a brighter or darker time? As AI have both merits and demerits. Just as AI has the potential to bring about radical development, which can in turn better our society, it also has the technical knowhow to invade into our privacy and destroy our long established cultural values (Boyd and Crawford 2012). What is yet to be ascertained is whether the merit of AI outweighs that of the demerit or not. However, the fear of AI as regards its positivity and negativity is as old as AI itself. Frey and Osborne (2013), Ford (2016) and Brynjolfsson and McAfee (2016) confirm this, when they cited the machine breaking Luddites in nineteenth century England, who almost jettisoned the promising digital algorithms or automated technologies based on their fear that they may tarnish their livelihood, and eventually put to an end, the desiring need for factory workers. AI, from its inception or invention has been seen as that that is capable of hindering and diminishing human foundational knowledge and endowed skills. It intercepts the love, relationship organizational engagement, identity and determination that ought to ensure job security among workers. Barden (2017) and Brent (2018) saw AI as that that imposes “a serious threat in the working world”. For Jerry (2016), Robots and machines have come to deny man of his legitimate rights in working places. This is true, as many jobs are today managed by robots and machines. The little ones that the robots and machines could not do are given to the highly educated ones, who have the skills, leaving the uneducated or the middle class unemployed.

Moreover, artificial intelligence (AI) is contrary to the concept of Selfhood (personhood) in African thought system. “Self” or personhood, following the African thought system, is acquired from the moral and social worth of an individual within a cultural community. Due to the fact that AI is a “no-self”, it does not and cannot possess the above qualities or attributes that make a person who s/he is. The reason for this argument is not in any way to prove that AI is useless to the sub-Saharan Africa, since it does not meet up with human standard; it is simply to educate the Africans, who in a bid to appreciate the accuracy and efficiency of AI, sabotaged or denied or failed to acknowledge the “self” and the African cultural values. There is an unhidden redundancy in the African traditional working skills, cultures and selfhood. African countries such as Ethiopia, Ghana, Kenya, South Africa and Nigeria are struggling to get acclimatized with the dictates and demands of the so called AI. This, they do, “without consideration of African values, ecosystem, infrastructure and workforce” (Gadzala 2018). If this continues, the values among citizens of the aforementioned countries will be eliminated or better still, homogenized with that of the West, as there would be no room for the proverbial or historical interaction or engagement among them. When we prefer to chart

24hours using an android phones and digital computers, the background knowledge that can be derived through “man to man” interactions will automatically be neglected. In other words, strong adherence to AI can destroy our cultural heritage and ingenuity accompanied with it. AI can equally lead to more massive destructive machine killers (Hass 2007), as against our modest or moderate weapons. The inability of so many Africans to understand that AI is not as friendly as they appear to be is the main reason we are not making any head way in so many African endeavours today. No wonder why Semens (2017) insists that there is need to control and limit the purpose of AI usage and development, for self-actualization and discovery.

In as much as it is correct and agreeable that artificial intelligence systems (AIS) are important to human, the claim that they can do without human beings in work places is incorrect. To enthroned AI which is “no self” above the “self” is to jeopardize, deflect and neglect the human capacity and intelligence that led to the invention of AI itself. The “self” in the African thought system can be protected and honored, and African cultural values retained, if the digital algorithms are seen as that that are solely developed to enhance human performances. Hence, human beings can survive without them but they cannot possibly survive or operate without the dictates of human beings. When this is accepted, the negligence, diminishing and deteriorating African “selves”, and values caused by the polarization and undue elevation of AIS, would be revitalized and appreciated.

Conclusion

The arrival of artificial intelligence systems (AIS) has stirred fear and questions about the place or fate of human being in a robotic world? At a glance, AIS could be seen as wonderful things that have happened to mankind. But at a closer rage, one becomes disappointed and left with no option but to accept the aphorism that all that glitters is not gold. The distinctive legal, social, ethical and ontological traits or features of human beings cannot be found or traced within the sphere of AI. In as much as it is agreeable that AI is a transformative technology that is capable of adding value (s) to our already existing values, it wittingly or unwittingly hinders interdependency and relationship that ought to exist among African selves in the workplace. It equally destroys the required skills needed for jobs in the traditional and cultural world, hence, creating avenue for unemployment and identity problem or crisis. When we embrace AI without due consideration of the “self”, the values which we have as Africans and by extension, human beings will be belittled and down played. In African thought system, therefore, “self” is a moral agent and “no-self” is an artificial agent. As the clamour for more favourable conditions for the thriving of AI in the African countries is gaining wait, the concept of African selfhood/personhood and culture that distinguish the Africans from non-Africans must be considered, and the imported artificial agents Africanized.

References.

- Ashforth, B and Mael, F. (1989). Social Identity Theory and the Organization, Academy of Management Review, vol. 14 (1): 20-39.
- Balogun, Oladele. (2013) "Artificial intelligence and the Quest for Knowledge". In Living Issues in Epistemology. (eds) Kyrian Ayiba Ojong and Elijah Okon John. 64-73
- Barden, J. (2017). Governing AI: Can Regulators Control Artificial intelligence? Raconteur. Retrieved on 19 October 2020.
- Boyd, D and Crawford, K. (2012).Critical Questions for Big Data, Information, Communication and Society. Doi:10.1080/1369118x.2012.678878. 15:5.662-679.
- Brent, M. (2018). What Kind of Impact Do Robots Make on Human? Sciencing. Retrieved on 19 October 2020.
- Briggs, A and Burke, P. (2010). Social History of the Media: From Gutenberg to the Internet. Cambridge: Polity Press.
- Boronea, A and Atanasiu, G. (2010) Distributed Artificial Intelligence in Organizational Management, Gheorghe Asachi Technical University. Retrieved 6 September 2021.
- Bryant, M (2011). 20 years ago today, the world wide web was born. <Http://the nextweb.com/insider/2011/08/06/20-year-ago-today-the-world-wide-web-opened-to-the-public/>. Retrieved 11 October 2020.
- Brynjolfsson, E and McAfee, A. (2016). The Second Machine age-work, Progress and Prosperity in a Time of Brilliant Technologies. New York: W. W. Norton & Co.
- Campa, R (2014) Technological Growth and Unemployment: A Global Scenario Analysis, Journal of Evolution and Technology, vol. 24 (1): 86-103.
- Davies, A, and Fidler, D (2011). Future work Skills 2020, University of Phoenix Research Institute, Retrieved 9 September 2021.
- Dennet, D.C. (1988). "When Philosophers Encounters Artificial intelligence" In Daedalus: Journal of American Academy of Arts and Science, vol:11, No1.
- Descartes, Rene. (1911). The Philosophical Works of Descartes. Translated by Elizabeth S. Haldane and G.R.T. Ross. Cambridge: Cambridge University Press.
- Dilsizian and Siegel (2014). Artificial intelligence in Medicine and Cardiac Imaging: Harnessing Big Data and Advanced Computing to provide Personalized Medical Diagnosis and Treatment. Current Cardiology Report. Vol.16, No1.
- Durairaj, M and Ranjani, V. (2013). Data Mining Applications in Healthcare Sector: A Study. International Journal of Science and Technology. Vol.2, No 10, pp. 29-35.
- Ford, M. (2016). The Rise of the Robots: Technology and the Threat of Mass Unemployment. London: One World Publications.
- Frey, C and Osborne, M. (2013). The Future of Employment: How Susceptible are Jobs to Computerization? Oxford: University of Oxford Press.
- Gadzala, Aleksandra. (2018). Coming to Life: Artificial Intelligence Introduction in Africa.
<https://espas.secure.europarl.europa.eu/orbis/sites/defaunfiles/generated/documents/en/coming-to-life-Artificial-Intelligence-in-Africa.pdf>. Washington: Atlantic Council.
- Gray, A. (2016). The 10 skills you need to thrive in the Fourth Industrial Revolution, World Economic Forum, Retrieved 6 September 2021.

- Hardt, D. (2016). Lecture 3: History and Future of AI : From the Enlightenment to Singularity. Text from slides or oral presentation during datafication course.
- Hass, P. (2017). The Real Reason to be Afraid of Artificial intelligence. TEDxTalks, Video Yutube. Retrieved on 21 October 2020.
- Heidegger, M. (1978). Being and Time. Trans. Macquarrie J and Robinson E. Oxford: Basil Blackwell.
- Jerry, K. (2016). Artificial intelligence: What everyone needs to know. New York: Oxford University Press.
- Letouze, Emmanuel and Pentland, Alex. (2018). Towards a Human Artificial intelligence for Human Development. ITU Journal . ICT Discoveries. Vol. 6. No 2.
- Luxton, D. D. (2014). Artificial intelligence in Psychological Practice: Current and Future Applications and Implications. Professional Psychology Research and Practice. Vol.45, No 5. P. 332.
- McBain, R.(2003). Human Resource Management: Organizational Identity, Manager Update. vol. 14 (4): 23-35.
- Morten, Bruno and Maria, Malmdorf. (2014). Udsolgt vase: Kunder raser mod Imerco. <https://Livesstil.tvz/2014-08-25-udsolgt-vase-kunder-raser-mod-imero>. Retrieved on 18 October 2020.
- Muro, Mark. et al. (2016). Automation and Artificial intelligence: How Machines are Affecting People and Places. Washington: Brookings.
- Nielson, Lucas. (2016). Artificial intelligence VS. Human intelligence. In Artificial intelligence and the rapid transformation of digitalization and datafication that our current society is going through. Retrieved 11 October 2020.
- Nils, J. Nilsson (2010). The Quest for Artificial intelligence: A History of Ideas and Achievements. Cambridge: Cambridge University Press.
- Price, D and Vandick, R. (2012). Identity and Change: Recent Developments and Future Directions. Journal of Change Management. vol. 12 (1): 7-11.
- Sarangi, S and Srivastava, R. (2012). Impact of Organizational Culture and Communication on Employee Engagement: An Investigation of Indian Private Banks.*South Asian Journal of Management*, vol. 19 (3): 18-34.
- Segun, T. Samuel. (2020). From Machine Ethics to Computational Ethics. <Https://doi.org/10./1007/s00146-020-01010-1>. London : Springer Nature.
- Semens. (2017). What is Artificial intelligence. Video Yutube. Retrieved on 21 October 2020.
- Smith, Mattew. Artificial Intelligence and Human Development. International Development Research Centre, 2018.
- TED and Bostrom, N. (2015). What happens when our computers get smarter than we are? <https://www.youtube.com/watch?v=MnT1xgZgkpk&feature=youtu.be&t=>. Retrieved on 18 October 2020.
- Torass, C. (2015). Social Robots: A Meeting Point between Science and Fiction. *METODE Science Studies Journal*. Vol.5 No 0. pp. 111-15.
- Turing, Alan. (1950).Computing Machinery and Intelligence. Mind 49:433-460
- Turkle, S. (2010). Alone Together: Why we expect more from Technology and less from each Other. New York: Basic Books.
- Wisskirchen G. et al. Artificial Intelligence and Robotics and their Impart on the Workplace. IBA Global Employment Institute, 2017.