

**ARTIFICIAL INTELLIGENCE: ARISTOTLE VIRTUE ETHICS. A CRITICAL
ANALYSIS**

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BENIN CITY**

AUGUST, 2023

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**AN ORIGINAL ESSAY SUBMITTED TO THE DEPARTMENT OF
PHILOSOPHY, FACULTY OF ARTS, UNIVERSITY OF BENIN, BENIN CITY,
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AUGUST, 2023

CERTIFICATION

This is to certify that this research entitled: **ARTIFICIAL INTELLIGENCE: ARISTOTLE VIRTUE ETHICS. A CRITICAL ANALYSIS** was carried out by **NZONONYE EKELE JULIET** with matriculation number **ART1801951** in the Department of Philosophy, University of Benin, Benin City, Edo State.

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DEDICATION

This project is dedicated to God Almighty for his steadfast love, mercy, and grace upon me, for seeing me through in the pursuit of my academic studies.

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I am most grateful to God Almighty and I return all the glory to Him, the Father of light and giver of all wisdoms for His impartation of knowledge and strength throughout this program.

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ABSTRACT

Artificial Intelligence has no doubt come to stay so much that it is incongruous to emergence of future world without it. The Impact of Artificial Intelligence (AI) is felt in almost, if not all fields of human endeavours including medicine, engineering, etc. The downside of this remarkable innovation is that, if left unchecked, it might constitute serious danger to, not only mankind but the world generally. Through the hermeneutic and critical analysis method this study shall define its concepts and point the implications of AI Artificial Intelligence. It shall therefore argue subsequently that in spite of the enormous advantages of Artificial Intelligence, concerted efforts must be taken to checkmate its excesses. This shall be done through the lens of Aristotle's virtue ethics which is built on the foundation of moderation.

CHAPTER ONE

1.0. GENERAL INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Man has been described as a rational animal because rationality is what sets him apart from other creations. Boethius defines man as: “*Naturae rationalis individual substantia* (an individual substance of a rational nature)”¹. Because man is naturally weak compared to others, he has used his power of creativity to ensure his survival and assert dominion over nature. One area that is gaining immense traction is artificial intelligence (AI) which means a situation where machines execute tasks which require intelligence to execute. These machines have direct impacts on the generality of humans and therefore calls for an adequate or effective ethical theory to regulate the AI industry since action without theory is blind². The target of this work is therefore to analyze the pros and cons of AI and thereafter prescribe the best form of ethical foundation on which it should be grounded.

1.2 STATEMENT OF THE PROBLEM

AI is ubiquitous in our contemporary world making it strange for anyone to suggest that it should be done away with as a result of the enormous benefits that it has brought. However, there are already red flags indicating that unless AI is adequately regulated it might spell doom for mankind. For instance, people are losing their jobs to machines,

just as others now see machines as better companions to man. War has become more lethal just as the environment and human health have experienced hazards because of AI related activities. There are calls from some quarters that unless something is done urgently machines might outsmart and enslave mankind in the nearest future. These are some of the issues that necessitated this undertaking.

1.3 PURPOSE OF THE STUDY

The object of the study is to first analyse the pros and cons of AI with a view to establishing that it is indispensable in today's world and that man has a lot to gain from it if it is properly harnessed. As a way of tackling the problems occasioned by it, the study shall employ Aristotle's virtue ethics which harps on moderation as the most effective means to regulate the conducts of those involved in the AI enterprise.

1.4 SIGNIFICANCE OF THE STUDY

The work is remarkable because AI cuts across almost, if not all, facets of our lives today. If left unchecked the consequences will be suffered by all. Further, when it is properly harnessed, everyone equally stands to benefit from it. Accordingly, a sound ethical foundation that would underpin AI is long overdue since it has come to stay for good.

1.5 SCOPE OF THE STUDY

The study shall take off by explaining what AI is all about and thereafter look at it as it applies to particular areas of man's endeavors vis: war, human labor and medicine/health care. The merits and demerits of AI shall then be zeroed in and after which Aristotle virtue ethics shall be relied on to address the deficiencies.

1.6 METHODOLOGY

The method of the study shall be analytic because the notion of AI as well as Aristotle's virtue ethics which we shall be simplified and clarified. The project shall then take a critical approach since the positive and negative sides of AI shall be weighed. Finally, a normative cum prescriptive approach would be adopted since the study intends to show what should be the case and how such can be attained.

1.7 DEFINITION OF CONCEPTS

1.7.1 AI: AI stands for "Artificial Intelligence." It refers to the simulation of human intelligence processes by machines, especially computer systems. This includes tasks like learning, reasoning, problem-solving, perception, language understanding, and even decision-making. AI technologies aim to create machines that can mimic cognitive functions typically associated with human minds.

1.7.2 Ethics: Ethics refers to the principles and values that guide and govern human behavior, interactions, and decision-making. It involves determining what is morally

right and wrong, as well as what is considered acceptable or unacceptable in various contexts. Ethical considerations often involve questions of fairness, honesty, responsibility, and the impact of actions on individuals, society, and the environment. Ethical frameworks help individuals and groups make choices that align with their values and contribute positively to the well-being of others and the world at large

1.7.3 Epistemology: Epistemology is the branch of philosophy that deals with the study of knowledge itself. It explores questions about how knowledge is acquired, justified, and evaluated. Epistemology delves into concepts such as belief, truth, evidence, perception, reason, and the limits of human understanding. Philosophers in this field examine the nature of knowledge, the ways in which we come to know things, and the various methods and processes that contribute to our understanding of the world.

1.7.4 Mind: The term "mind" generally refers to the collective aspects of intellect and consciousness that are characteristic of human beings and other intelligent organisms. It encompasses cognitive faculties such as thought, perception, memory, reasoning, emotions, and consciousness. The mind is responsible for processing information, making decisions, experiencing sensations, and generating thoughts and feelings. While it's a complex and multifaceted concept, it's often associated with the mental processes and activities that underlie human behavior and experience

1.8 LITERATURE REVIEW

The first book reviewed is: *Introduction to Artificial Intelligence* by Ahmed Habeeb³. AI is a segment in computer science that is capable of creating intelligent machines that work and reacts like humans. Some of its features include: speech recognition, learning, planning and problem solving. AI also enhances deep learning, machine learning, computer programming, medical field etc. Deep Learning has enabled many practical applications of Machine Learning and all other fields of AI. Deep Learning breaks down tasks in ways that make all kinds of machine assists seem possible, even likely. Driverless cars, better preventive healthcare, even better movie recommendations are all here today or on the horizon. AI is the present and the future. Machine learning at its most basic nature is the practice of using algorithms to parse data, learn from it and then make a determination or prediction about something in the world. So rather than hand-coding software routines with a specific set of instructions to accomplish a particular task, the machine is programmed using large amounts of data and algorithms that give it the ability to learn how to perform the task.

The second book reviewed is: *Application of Artificial Intelligence* (Wikipedia)⁴. AI has its application in many disciplines in our society. The form of AI where programs are developed to perform certain tasks yet being utilized for a wide range of activities is known as weak AI, however, it has been used to develop and advance numerous fields and industries such as: agriculture, aviation, computer science, education, finance,

market analysis and data mining, history, government, hospital and medicine, human resources and recruiting, job search, marketing, media and e-commerce, military, music, writing and publishing, online and telephone customer services, power electronics, sensors, telecommunications maintenance, toys and games, transportation etc.

The third book reviewed is: *Artificial Intelligence in Medical Application* by Wan Hussain Wan Ishak and Fadzilah Siraj⁵. The insufficiency of medical specialist which is not likely to be resolved soon, even if huge number of doctors are being produced annually by The Institutions of higher learning has necessitate the advent of computer technology and software such as AI which has been developed to assist and help doctors make fast decision without consulting the specialist directly, which has also reduced patient's cost and time without which patients could die in their deadly diseases while waiting to see the specialist that could diagnose their diseases . Computer software known as Medical Decision-Support System was designed to help health professionals make clinical decision⁶. The advancement in computer technology and communication encourages health-care provider to provide health-care over the internet or telemedicine which is the integration of information technology and medical care tech to promote health care delivery ⁷.

The fourth book reviewed is *Artificial Intelligence and the Future of Warfare* by M.L. Cummings⁸. Both military and commercial robots will in the future incorporate AI that could make them capable of undertaking tasks and missions on their own. In the military

context, this gives rise to a debate as to whether such robots should be allowed to execute such missions, especially if there is a possibility that any human life could be at stake. In the complex discussion of if and how the development of autonomous weapons should be controlled, the rapidly expanding commercial market for both air and ground autonomous systems must be given full consideration. Banning an autonomous technology for military use may not be practical given that derivative or superior technologies could well be available in the commercial sector.

A metaphorical arms race is in progress in the commercial sphere of autonomous systems development, and this shift in research and development effort and expenditure from military to commercial settings is problematic. Military autonomous systems development has been slow and incremental at best and pales in comparison with the advances made in commercial autonomous systems such as drones, and especially in driverless cars. The future of warfare is linked to AI, hence, the present large disparity in commercial versus military research and development spending on autonomous systems development could have a cascading effect on the types and quality of autonomy that are eventually incorporated into military systems. One critical issue in this regard is whether defense companies will have the capacity to develop and test safe and controllable autonomous systems, especially those that fire weapons. Fielding nascent technologies without comprehensive testing could put both military personnel and civilians at undue risk. However, the rapid development of commercial autonomous systems could normalize the acceptance of autonomous systems for the military and the public, and this

could encourage state militaries to fund the development of such systems at a level that better matches investment in manned systems.

The fifth book reviewed is: *How change in Technology and Automation Will Affect the Labour Market in Africa*, by Kerry. A. Millington⁹. Estimates of how many jobs are vulnerable to being replaced by machine vary but it is clear that developing countries are more susceptible to automation compared to high income countries. Traditionally, blue-collar routine jobs have been automated but with the emergence of greatly improved computing power, AI and robotics, a much larger scope of occupations are at risk. Vulnerability to automation is now based on whether jobs or tasks are modifiable and whether they are routine or not. Highly-trained and skilled jobs can be more at risk than more varied, lesser skilled jobs. Future employment growth is likely to come from jobs that cannot be fully or partially automated. Among the low skilled, some services that must be delivered face-to-face or require awareness and situational adaptability (housekeepers, hairdressers) are likely to grow. Among the high-skilled, occupations will rely on modern skills involving creativity and social interactions and will use digital technologies to complement their tasks. Middle-skilled jobs, often near the top of the income distribution in low-income countries, are increasingly being automated polarizing the labour market into two groups doing non -routine work: highly paid skilled workers and low-paid unskilled workers. Through previous waves of technological advancement middle-skilled workers would have been able to seek jobs in other routine middle-skilled occupations. But the wider scope of routine occupations

being automated means that the process of job creation and destruction will hurt individuals whose skills are substituted by technology, because they often do not have the skills required in many of the new jobs. Even for those who stay within the same occupations, jobs will be transformed, requiring modern skills. In the future, unless these people retrain and upskill, they will become an increasing supply for low-paid unskilled work.

The sixth book reviewed is: *The Nichomachean Ethics of Aristotle*¹⁰. Aristotle's theory begins with the assumption that every art and every investigation, every pursuit and every action, aims at some good; therefore, the good has been defined as the object at which everything aims¹⁴. Aristotle posit a question; what is good? The answer to this question is happiness, which Aristotle calls "eudaimonia". Aristotle states that happiness is the most desirable of all things. It is something final and complete in itself, as being the aim and end of all practical activities whatever. According to Aristotle, there is a general agreement on the answer of this question. Both ordinary people and educated people define the good as happiness; however, with regard to what constitutes happiness, people's opinions differ¹¹. Aristotle suggests that to better understand the nature of happiness we must investigate the nature of virtue, since happiness is "the active exercise of the mind in conformity with perfect goodness of virtue". According to Aristotle, virtue is a habit which can be learned and gained through practice. Aristotle believes that people can be taught to be virtuous, which can have important implications for moral education. Aristotle next focus on what virtue is. According to Aristotle, there

exist three kinds of things in the soul: passions, faculties, and state of character; and virtue must be one of these. By passions Aristotle means the feelings generally related to pleasure or pain, such as anger, appetite, fear, confidence, joy, friendly feeling. Aristotle defines faculties as the things in virtue of which we are capable of feeling these, e.g. of becoming angry or being pained or feeling pity. While states of characters are the things in virtue of which we stand well or badly with reference to the passions. Aristotle likened virtue with practical goodness which means moderation. Conclusively, for Aristotle, a virtuous man is man that upholds moderation in everything.

The Seventh Book Reviewed is Philosophy of Artificial Intelligence by Rajakishorenath¹². In mid-19th century, the hypothesis that ‘machine can think’ became very popular, especially after Alan Turing’s article, ‘Computing Machinery and Intelligence.’ This hypothesis states that machines can think intelligently just like human beings. This view emphasizes that intelligent behaviour and its interrelatedness gives rise to abstract automation, which Searle calls Strong Artificial Intelligence. That is to say, an artificial, non-biological system could be a sort of thing that could give rise to conscious experience¹³. Similarly, Marvin Minsky held that human mind happens to be nothing but a ‘Meat Machine¹⁴.’ Thus, artificial intelligence has emerged as a scientific programme in the twentieth century. The object of research in artificial intelligence is to discover how a program performs the remarkable functions that make up human intelligence. The work in artificial intelligence leads not only to the invention of increasingly useful computers but also to an enhanced understanding of human cognitive

processes. The broadly interdisciplinary character of cognitive science finds expression in studies that range over art, design, learning, problem-solving and analogical reasoning, which are explored from the perspective of philosophy, psychology and AI.

The Eighth Book Reviewed is *Critique of Artificial Intelligence* by John N. Hooker. It is argued that "postmodern" understanding of language that has developed over the last few decades in Anglo-American philosophy provides the basis for a useful critique of artificial intelligence. This postmodern view corrects an error in the traditional Western conception of language that has led many researchers in AI and cognitive science into taking a rule-based or information-processing approach. Wittgenstein's view that language does not receive its meaning through definition, and Quine's view that neither words nor sentences but only discourse as a whole is the proper unit of meaning, argue against an attempt to formulate rules for understanding language, which is an essential part of "strong" AI. AI researchers are already beginning to correct this mistake, but an understanding of its true extent and depth can lead to the sort of radical rethinking that is necessary. The field of artificial intelligence (AI) aims to reproduce human intelligence by artificial means. The AI community generally concedes that achieving this goal has been harder than anticipated and awaits significant breakthrough.

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CHAPTER TWO

2.0 ARTIFICIAL INTELLIGENCE; CONCEPTUAL ANALYSIS

2.1 MEANING AND NATURE OF ARTIFICIAL INTELLIGENCE AND ARTIFICIAL INTELLIGENCE IN SELECT ASPECTS

The primary work that is currently commonly perceived as AI was finished by Warren McCulloch and Walter Pitts (1943). They drew on three sources: learning of the fundamental physiology and capacity of neurons in the cerebrum; a proper examination of propositional rationale because of Russell and Whitehead; and Turing's hypothesis of calculation. They proposed a model of fake neurons in which every neuron is described as being "on" or "off," with a change to "on" happening in light of incitement by an adequate number of neighboring neurons. The condition of a neuron was considered as "authentically proportionate to a recommendation which proposed its satisfactory boost." They appeared, for instance, that any calculable capacity could be figured by some system of associated neurons, and that all the sensible connectives (and, or, not, and so on.) could be executed by straightforward net structures.

McCulloch and Pitts likewise recommended that reasonably characterized systems could learn. Donald Hebb (1949) showed a straightforward refreshing rule for altering the association qualities between neurons. His standard, presently called Hebbian learning, stays a persuasive model right up 'til the present time. Two undergraduate students at Harvard, Marvin Minsky and Dean Edmonds, built the first neural network computer in

1950. Minsky was later to prove influential theorems showing the limitations of neural network research. There were a number of early examples of work that can be characterized as AI, but Alan Turing's vision was perhaps the most influential. He gave lectures on the topic as early as 1947 at the London Mathematical Society and articulated a persuasive agenda in his 1950 article "Computing Machinery and Intelligence." Therein, he introduced the Turing Test, machine learning, genetic algorithms, and reinforcement learning.¹

Princeton was home to another compelling figure in AI, John McCarthy. In the wake of getting his PhD there in 1951 and laboring for a long time as an educator, McCarthy moved to Stanford and after that to Dartmouth College, which was to turn into the official origination of the field. McCarthy persuaded Minsky, Claude Shannon, and Nathaniel Rochester to enable him to unite U.S. analysts inspired by automata hypothesis, neural nets, and the investigation of intelligence. They sorted out a two-month workshop at Dartmouth in the late spring of 1956. The proposition states: We recommend that in two months, 10 men investigation of Artificial Intelligence be completed throughout the mid-year of 1956 at Dartmouth College in Hanover, New Hampshire. The examination is to continue based on the guess that each part of learning or some other element of insight can on a basic level be so correctly portrayed that a machine can be made to mimic it. An endeavor will be made to discover how to make machines use language, structure deliberations and ideas, take care of sorts of issues currently held for people, and improve themselves. They felt that a huge development

can be made in at least one of these issues if a painstakingly chosen gathering of researchers take a shot at it together. There were 10 participants taking all things together, including Trenchard More from Princeton, Arthur Samuel from IBM, and Ray Solomonoff and Oliver Selfridge from MIT. Two specialists from Carnegie Tech, 11 Allen Newell and Herbert Simon, rather got everyone's attention.²

The British mathematician Alan Turing was one of the organizers of present day software engineering and AI. He characterized intelligence as the capacity to accomplish human-level execution in psychological errands, this later ended up famous as the 'Turing test'. "Artificial Intelligence; Man-made reasoning" was an articulation presented as an 'advanced' swap for the simple 'robotics'/cybernetics.

Artificial Intelligence/Man-made brainpower started as an investigation spearheaded by any semblance of George Boole, Allen Newell and Herbert Simon, who established the principal computerized reasoning research facility. The rise of another field that manages the investigation of correspondence between individual and machine called 'Artificial intelligence' as begat and established by Norbert Wisner crossed over any barrier between people and machine.

Artificial Intelligence is the subfield of Computer Science worried about understanding the idea of knowledge and building PC frameworks fit for insight activity. Man-made reasoning or AI for short is a blend of software engineering, brain science, and theory.³

Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with artificial intelligence are designed for include: Speech recognition, Learning, Planning, Problem solving. It has become an essential part of the technology industry. Research associated with artificial intelligence is highly technical and specialized. The core features of artificial intelligence include programming computers for certain traits such as: Knowledge, Reasoning, Problem solving, Perception, Learning, Planning, and Ability to manipulate and move objects.

Knowledge engineering is a core part of AI research. To better understand AI, it is important first to understand the difference between an automated and an autonomous system. An automated system is one in which a computer reasons by a clear if-then-else, rule-based structure, and so take a determined decision, meaning that for each input the system output will always be the same (except if something fails). An autonomous system is one that reasons probabilistically given a set of inputs, meaning that it makes guesses about best possible courses of action given sensor data input. Unlike automated systems, when given the same input autonomous systems will not necessarily produce the exact same behaviour every time; rather, such systems will produce a range of behaviours. Due to its versatility, Artificial intelligence holds divers definitions by scholars.

According to Haugeland, Artificial intelligence is the exciting new effort to make computers think; machines with minds, in the full and literal sense. Bellman posited that AI is the automation of activities that we associate with human thinking, activities such as decision making, problem solving, learning. Charniak and McDermott define AI as the study of mental faculties through the use of computational model. Winston it as the study of the computations that make it possible to perceive, reason and act. AI, for Kurzweil is the art of creating machines that perform functions that require intelligence when performed by people. Rich and Knight opined that AI is The study of how to make computers thinks at which, at the movement, people are better. For Schalkoff, AI is a field of study that seeks to explain and emulate intelligent behaviour in terms of computational process. Luger and Stubblefield hold it to be the branch of computer science that is concerned with the automation of intelligent behaviour. All these definitions of AI can be categorized into four:

- (i) Systems that think like humans
- (ii) Systems that act like humans
- (iii) Systems that think rationally
- (iv) Systems that act rationally

AI theory can be best understood through the intelligent agent concept. An intelligent agent incorporates the skills required to pass the Turing Test, which assesses whether a machine can think like a human.

Artificial intelligence machines, based on their degree of complexity, can be grouped into two: weak AI and Strong AI. Weak AI are made to respond to specific situations, but cannot think for themselves. A machine with strong AI is able to think and act just like a human. It is able to learn from experiences. A good example is robots. Application of AI includes but not limited to driverless cars, military robots and so on.

Artificial intelligence has spread its tentacles across many discipline, hence it is indispensable especially as time rolls by in this modern world. Applied Artificial intelligence is possible in diverse discipline, some of which are:

1. Medicine/ Health Care
2. Human Labour
3. Warfare/Military

2.1.1 ARTIFICIAL INTELLIGENCE AND MEDICINE /HEALTH CARE

Aristotle's attempt to formalize right thinking through his syllogisms birthed the inspiration behind contemporary studies on operation of the mind and logical thinking such as Artificial Intelligent systems. The field of medicine is one of the many areas in which artificial intelligence is applied, and is termed Medical AI. There has been a high surge in the interest in medical AI in the last two decades. In 1976, Gunn became the first to successfully investigate the application of AI in surgery when he unraveled the possibility of diagnosing acute abdominal pain with computer analysis⁴. Consequently, some computer programs have helped enhance healthcare services such as Medical

Decision-Support System designed to help health professionals make clinical decision.⁵ Patient-Centered Health Information Systems developed to assist monitoring, managing and interpret patient's medical history⁶; and telemedicine, a word used to describe the use of computer and communication technologies to augment health care delivery services across space and time. Using the technology, problems in preparing the medicine and drug complication can be avoided ⁷ as well as reduce the cost and time for both patients and doctors.

Acquisition, Analysis, and application of large amount of data in solving complex clinical problems are challenges that can be ameliorated by medical AI in the following ways:

- i. Helping the clinician in the formulation of a diagnosis,
- ii. Making therapeutic decisions and
- iii. Predicting outcome of a medical procedure.

These medical AI systems assist healthcare workers in the manipulation of data and knowledge. Such systems include artificial neural networks (ANNs), fuzzy expert systems, evolutionary computation and hybrid intelligent systems⁸. The Artificial Neural Network inspired by the biological nervous systems is the most popular AI technique in medicine ⁹. It has the ability to learn from historical examples, analyze non-linear data, handle imprecise information and generalize enabling application of the model to independent data has made them a very attractive analytical tool in the field of

medicine¹⁰. ANNs have also been used in diagnosing cytological and histological specimens. ANN is the brain behind Electrocardiograph for diagnosing heart problems; electro encephalograms (EEG) in diagnosing epilepsy and sleep disorders as well as electromyography (EMG) wave forms. Fuzzy expert systems (FES) are a logic-based AI technique that used for careful rational decision making. Fuzzy logic is the science of reasoning, thinking and inference that recognizes and uses the real-world phenomenon – that everything is a matter of degree. FES argues that there are points between the Boolean 1 and 0 for true and false respectively. Fuzzy expert systems have the structure of a series of ‘if – then’ rules for modeling with which medical decisions are taken and diagnosis performed: of acute leukemia, breast cancer, pancreatic cancer, lung cancer. Fuzzy logic has also been used to predict survival in patients with breast cancer as well as for the administration of aesthetics in operating room.

Evolutionary Computation is a branch of Artificial Intelligence applied in medicine to perform several types of tasks like diagnosis and prognosis, medical imaging and signal processing, and planning and scheduling. The principles of Genetic algorithms have been used to predict outcome in critically ill patients, lung cancer, melanoma and response to warfarin and so on The advantages of these technologies can be combined together to produce hybrid intelligent systems which can work in a complementary manner. Their synergy allows a hybrid system to accommodate common sense, extract knowledge from raw data, use human-like reasoning mechanisms, deal with uncertainty and imprecision, and learn to adapt to a rapidly changing and unknown environment.

Some examples where this is applied includes breast cancer diagnosis, analysis of micro calcification on digital mammograms, diagnosis of coronary artery stenosis, assessment of myocardial viability and control of the depth of anaesthesia.¹¹

2.1.2 ARTIFICIAL INTELLIGENCE AND HUMAN LABOUR

Artificial intelligence such as Robots can be used to perform human task and human herculean tasks more perfectly than man, they are machines, hence they don't get tired, they don't feel hungry, they neither need nor demand for salaries, they simply neatly carry out the job(s) they have been programmed to perform, this amazing innovation has attracted and titivated more technologist to start strictly looking into this area as an interesting one, They now delve into the making and use of Artificial Intelligence with the aim of solving long standing problems in the world. Whereas the advent of Artificial Intelligence has resolve many technical problems and has been used to alley stress and toiling, it has silently and gradually replaced humans labour; Robots are taking over human jobs and predictions has been made that 20 million jobs will be lost Worldwide by 2030 with every robot Costing 1.6 manufacturing jobs.

Tasks that are monotonous can be easily automated; this can gradually make certain roles obsolete. For instance, tasks and activities related to customer care/call center operation, document classification, discovery and retrieval, content moderation are more and more based on technology and automation and less on human work. The same is true for roles related to operation and support of production lines and factories: humans are

being replaced by smart robots that can safely navigate the space, find and move objects (such as products, parts or tools) or perform complex assembling operations. Fully autonomous cars are already being produced which is proven to be safer, efficient and effective.

Commerce has undergone technological transformation in the sense that robots can navigate the space to collect products and execute customer orders; to be then sent or even delivered to customers with autonomous drones or cars. The importance of salespersons and networks of physical stores will shrink; we are close to scenarios where consumer AI Agents negotiate with Retailer AI Agents, Legal profession will get a wind of the wave of prevailing tech; Artificial Intelligence. Everything that has to do with document handling, discovery, summarization, comparison, knowledge extraction and management are fields and tasks where AI agents can do a great job already ¹². Unlike human workers, the machines are connected the whole time. If one machine makes a mistake, all autonomous systems will keep this in mind and will avoid the same mistake the next time.

Over the long run, intelligent machines will win against every human expert. Since the 19th century, production robots have been replacing employees because of the advancement in technology. They work more precisely than humans and cost less. Creative solutions like 3D printers and the self-learning ability of these production robots will replace human workers. Owing to the great number of emerging

multidisciplinary support alternatives due to AI and machines, the requirements for future employees will change. There will be hardly any need for employees who do simple and/or repetitive work. Already today, the number of factory workers is constantly decreasing, and humans are ever more becoming the control mechanism of the machine. The automotive industry, where many production steps are already fully automated, is the pioneer in this respect. The lower the demand for workers, the higher will be the companies' demand for highly qualified employees. According to common belief, better education helps¹³.

Technological unemployment will not occur as soon as predicted since artificial intelligence is still far from being able to substitute all the carefully bundled actions required to truly replicate human behavior.

These new technologies will lead to a beneficial “innovation effect” – sparking new industries or decreasing the cost of existing processes. This will stimulate the economy by both increasing overall output and unlocking latent demand for professional services as they become cheaper. Although there is variability surrounding which types of jobs will be affected, how soon these changes will occur, and the overall magnitude of the change, there is consensus that artificial intelligence would represent a new employment paradigm. The high-risk jobs described by Frey and Osborne are only a snapshot of the current employment landscape, but still represent a large enough cross-section of available jobs under risk to cause alarm and merit discussion. We acknowledge that a

technology as profound as AI is bound to create jobs, just as previous revolutionary technologies (steam, electricity, computing etc.) have done, but there are other important questions surrounding this technological transformation that should still be examined regardless of the eventual outcome. For example, will our society be able to accommodate the displacement of a large percentage of its workforce within a generation or two? Will the lower-risk professional jobs be able to accommodate the massive shifts in our labour markets as they also come under pressure from automation? The answers to these questions are fundamentally unknowable since the future is impossible to predict with certainty. But planning for the worst-case scenario is a prudent exercise – one that will lead to a more informed decision-making process. The proposal and implementation strategy in the following chapters is our attempt to start a discussion on how to plan for the Checkmate scenario¹⁴.

2.1.3 ARTIFICIAL INTELLIGENCE AND WARFARE

Technology has always been used to produce improved tools of warfare. In the modern age, which is normally accepted to have begun after the French revolution, systematic research in sciences has enabled development of new technology and innovations for both military and civilian use. These have had effects both on the society and on the nature of warfare. European nations, besides waging war among themselves, used their superior technology to subjugate and colonize other nations. The present age which is being referred to as postmodern age or knowledge age, is unfolding an unprecedented

revolution in technologies. These technologies have not only touched myriad activities in the civil field but have also initiated a revolution in military affairs.

Warfare, over the centuries, has progressed from primitive wars between tribal societies based on agrarian economy and further, to warfare between industrialized societies. Mankind has progressed successively from fighting with bows and arrows to rifles, guns, tanks, aircraft and missiles. Scientific and technological advances though slow and gradual in 18th and 19th centuries were dramatic in the 20th century.

The development of Iron clad ships in the 1860s, the machine gun in the 1890s, the manned aircraft and the tank in the 1920s – 1930s, the aircraft carrier and radar in the 1930s – 1940s, and the nuclear weapons in the 1940s – 1950s are some of the important signposts in the evolution of military technologies. Each of these developments had revolutionary effects on the conduct of warfare.¹⁵

Artificial Intelligence in conjunction with warfare cuts across arms, transportation, air power among others. Artificial Intelligence has influenced warfare so much that war can be waged and battles fought with remote computers that are being operated thousands of miles away from a combat arena. These technologies; AI in particular is increasingly impersonal, as countries are waging war via proxies and remote controlled weaponry¹⁶.

Whereas, Science and technology has the capacity to revolutionise government structures, economies and life, such technologies could also spell doom to people and the society if proper measures are not imbibed to achieve moderation.¹⁷

2.2 POSITIVE AND NEGATIVE CRITICISM OF ARTIFICIAL INTELLIGENCE

Tech billionaires Elon Musk and Mark Zuckerberg have entered into a public squabble about artificial intelligence in which Musk, having warned Mark Zuckerberg that AI should be regulated to combat existential threat before it is too late, and his advice turned down, described the Facebook CEO's knowledge of the field as "limited".

The groundwork for the world's nerdiest fight was laid by Musk, the Tesla and Space X CEO, when he pushed again for the proactive regulation of artificial intelligence because he believes it poses a fundamental risk to the existence of civilization.

Musk told a gathering of US governors that the potential dangers are not so imaginary, and that they should move to regulate AI. "I keep sounding the alarm bell, but until people see robots going down the street killing people, they don't know how to react, because it seems so ethereal," he said. Musk, who has been issuing warnings like these for years now, is concerned that humans will become second-class citizens in a future dominated by artificial intelligence – or that we'll face a Terminator-style robot uprising. Enter Zuckerberg, who denounced these types of warnings as "pretty irresponsible". Zuckerberg made the comments while taking questions during a Facebook Live broadcast from his Palo Alto home. One viewer asked: "I watched a recent interview with Elon Musk and his largest fear for the future was AI. What are your

thoughts on AI and how could it affect the world?” In an uncharacteristically candid response, Zuckerberg said:

“I have pretty strong opinions on this. I am optimistic. And I think people who are naysayers and try to drum up these doomsday scenarios – I just, I don’t understand it. It’s really negative and in some ways I actually think it is pretty irresponsible.”¹⁸

Zuckerberg believes that AI will have much less dystopian applications, and will be responsible for saving lives through disease diagnosis and by powering driverless cars. One of the top causes of death for people is car accidents, still, and if that can be eliminated with AI, it is going to be just a dramatic improvement. Musk had to come back on twitter and asserted that Mark’s Understanding on the subject of AI is Limited.

2.2.1 POSITIVE CRITICISM OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) which has been gaining momentum has been argued to have a wide range of benefit and opportunities to humanity as we cannot imagine the future without advanced AI that will impact more and more facets of our lives, from work to medicine, and from education to interpersonal relations. Waves of programmers that get the maximum performance out of latest generation processors are obtaining spectacular results.

One of the most outstanding AI applications is voice recognition: while the first models were awkward and marked by constant defects, they are now capable of responding correctly to all sorts of user requests in the most diverse situations. In the field of image

recognition, remarkable advances are also being made, with programs able to recognize figures. Indeed, if we consider the growing threats of climate change, rising sea levels and mass extinction, as well as nuclear threats and political instability, some would find few reasons to be cheerful. Depending upon which variables we prioritize (equality, biodiversity, violence, poverty, CO2 levels, conflict, ozone layer depletion), and how we measure them, we can make rational arguments for pessimistic views on the future of humanity. However, the technology such as artificial intelligence (AI), which is predicted to have a huge impact on the future of humanity, could bring substantial benefits to several aspects of our lives, from weather predictions to cancer diagnostics to nuclear threat etc.¹⁹

Artificial Intelligence has also help to provide an impeccable solution to the basic problems of energy, environmental issues, transportation, food and water, disease and human suffering, education, population among others. For example, a recent groundbreaking discovery of the disease Amyotrophic Lateral Sclerosis (ALS) was made through a partnership between Barrow Neurological Institute and the artificial intelligence company IBM Watson Health. IBM Watson, the artificial intelligence computer, reviewed thousands of pieces of research and was able to identify new genes linked to ALS. Furthermore, according to a report by Stanford University, not only will self-driving cars reduce traffic-related deaths and injuries, but they could bring about changes in our lifestyles as well. We will have more time to work or entertain ourselves during commutes. AI can transform how we learn. Students at Georgia Tech University

in the US were startled to recently discover that their helpful teaching assistant had in fact been a robot all along. After initial teething problems, the robot started answering the students' questions with 97% certainty.

Be that as it may, there is only a hand full of people in the world that can finance a large-scale natural energy project like the Giga factory or rooftop solar panel tiles and the reality is that we need to democratize those solutions and make it available worldwide especially in developing countries — the only solution is AI, because it can help us figure out how to produce it in a cheap and an efficient way. Google has used its artificial intelligence platform Deep Mind to predict when its data centers will get too hot. Cooling systems are only activated when required. AI has saved Google around 40% in energy costs at its server farms.²⁰

In conclusion, Artificial Intelligence has spread its tentacles across many disciplines, each of which can be annexed to advance and ameliorate long standing problems in the society.

They Include:

Natural Language Generation, Speech recognition, Virtual Agents Machine Learning Platforms, AI-Optimized Hardware, Decision Management, Deep Learning Platforms, Biometrics, Robotic Processes Automation, Text Analytics & NLP (Natural Language Processing), Digital Twin/AI Modeling, Cyber Defense, Compliance, Knowledge Worker Aid, Content Creation, Peer-to-Peer Networks, Emotion Recognition, Image

Recognition, Marketing Automation etc. Artificial Intelligence such as Robots are capable of taking on stressful and complex work that humans may struggle /cannot do, completing task faster than a human can most likely, discovering unexplored things. i.e. outer space, they have Less errors and defects, their Function is infinite.

Tech decision makers have sort for ways to effectively implement artificial intelligence technologies into their businesses and, therefore, drive value. Marketing divisions have benefitted so much from AI so far, and there is great faith placed in AI within this industry for good reason. Fifty-five percent of marketers are sure AI will have a greater impact in their field that social media has. Marketing automation allows companies to improve engagement and increase efficiency to grow revenue faster. It uses software to automate customer segmentation, customer data integration, and campaign management, and streamlines repetitive tasks, allowing strategic minds to get back to doing what they do best.²¹

2.2.2 NEGATIVE CRITICISM OF ARTIFICIAL INTELLIGENCE.

Legendary physicist Stephen Hawking shared this ominous warning: "Success in creating effective AI could be the biggest event in the history of our civilization. Or the worst. So we cannot know if we will be infinitely helped by AI or ignored by it and sidelined, or conceivably destroyed by it."

The first step in being able to prepare for the negative impacts of artificial intelligence is to consider what some of those negative impacts might be. Here are some key ones:

a. AI Terrorism

Similarly, there may be new AI-enabled form of terrorism to deal with: From the expansion of autonomous drones and the introduction of robotic swarms to remote attacks or the delivery of disease through Nano robots. Our law enforcement and defense organizations will need to adjust to the potential threat these present.

It will take time and extensive human reasoning to determine the best way to prepare for a future with even more artificial intelligence applications to ensure that even though there is potential for adverse impacts with its further adoption, it is minimized as much as possible.

As is the case with any disruptive event, these aren't easy situations to solve, but as long as we still have humans involved in determining solutions, we will be able to take advantage of the many benefits of artificial intelligence while reducing and mitigating the negative impacts.

b. Accelerated Hacking

Artificial intelligence increases the speed of what can be accomplished and in many cases, it exceeds our ability as humans to follow along. With automation, nefarious acts such as phishing, delivery of viruses to software and taking advantage of AI systems because of the way they see the world, might be difficult for humans to uncover until there is a real quagmire to deal with.

c. AI Bias

Since AI algorithms are built by humans, they can have built-in bias by those who either intentionally or inadvertently introduce them into the algorithm, hence they will produce results that are biased. This reality could lead to unintended consequences like the ones we have seen with discriminatory recruiting algorithms and Microsoft's Twitter Chabot that became racist. As companies build AI algorithms, they need to be developed and trained responsibly.

d. Loss of Certain Jobs

While many jobs will be created by artificial intelligence and many people predict a net increase in jobs or at least anticipate the same amount will be created to replace the ones that are lost thanks to AI technology, there will be jobs people do today that machines will take over. This will require changes to training and education programs to prepare our future workforce as well as helping current workers transition to new positions that will utilize their unique human capabilities.

e. A Shift in Human Experience

If AI takes over menial tasks and allows humans to significantly reduce the amount of time they need to spend at a job, the extra freedom might seem like a utopia at first glance. However, in order to feel their life has a purpose, humans will need to channel their newfound freedom into new activities that give them the same social and mental

benefits that their job used to provide. This might be easier for some people and communities than others. There will likely be economic considerations as well when machines take over responsibilities that humans used to get paid to do. The economic benefits of increased efficiencies are pretty clear on the profit-loss statements of businesses, but the overall benefits to society and the human condition are a bit more *opaque*.

f. Global Regulations

While our world is a much smaller place than ever before because of technology, this also means that AI technology that requires new laws and regulations will need to be determined among various governments to allow safe and effective global interactions. Since we are no longer isolated from one another, the actions and decisions regarding artificial intelligence in one country could adversely affect others very easily. We are seeing this already playing out, where Europe has adopted a robust regulatory approach to ensure consent and transparency, while the US and particularly China allows its companies to apply AI much more liberally.²²

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CHAPTER THREE

3.0. BACKGROUND TO ARISTOTLE'S VIRTUE ETHICS

3.1 ETHICAL THEORIES

The history of Ethics and Morality always raise the question: How ought one live? This inquiry speaks to the establishment of hundreds of years of discussion concerning the way of thinking of morals, a subject that essayists from each nation over each age have talked about, dispersed, and placed their contemplations on without yet arriving at an accord.

The voices in the discourse of Ethics are cross-referential, expanding upon what's more, reacting to going before hypotheses as every rationalist takes their particular position on ethical quality. The possibility of good and evil has been separated through countless viewpoints, taking into consideration questions on the integrity of activities as well as the utilization, rightness, ethical quality, and justness of activities. For the antiquated Greeks, the code of good accuracy was spoken to by the sagas. Journalists like Homer sang the gestures of recognition of righteous men, holding such characters up as standards of upright activity.

It is apparent in the Odyssey that these legends looked to the pantheon of Greek divine beings as their asset for right living. Notwithstanding obvious conviction in the presence of such creatures, the qualities of the different divinities, as plot in legend, educated the

activities regarding saints like Odysseus. In this way, the Greeks had a model to advise their very own conduct and by which to judge others. Since the fall of antiquated Greece, different savants have taken a contradicting stand, demanding that ethical quality is an overall element of the individual – which no preset code applies to all individuals in all conditions. The progressions in moral way of thinking throughout the years reflect sociological movements that, in reacting to contemporaneous occasions, mentally condense the social understandings and responses to socio-political changes. Notwithstanding the steady motion of idea, at an exceptionally base level, morals make progress toward a durable society.¹

Ethics, as the thought of Man about his action, is as ancient as Man itself. An evolutionist point of view demonstrates that as Man liberated himself from the deterministic laws of nature, he began to practice his own will; simultaneously, his activity was never again intrinsic and hence all around indistinguishable, directed by impulse, and completely unsurprising and turned into a solitary choice after a specific pondering procedure, and now and again introducing itself as startling and constantly person. From that point on, Man needed to confront a majority of methods for activity, to build up criteria for the basic leadership process, to expect his own freedom to act, and to manage the ensuing duty regarding his activities. Ethics is a philosophical discipline that was established as such by Aristotle, in the 3rd century BC.

Aristotle in his *Nicomachean Ethics* characterized the object of morals as human activity: "praxis" or inborn activity, the sort of activity wherein the item or impact turns out to be a piece of the specialist, forming the operator's character. For instance, activities of philanthropy make the individual who acts altruistic. The thinker additionally organized an approach of concentrate seeking after a semantic of activity, dissecting human conduct what's more, its belongings in the forming of the operator's character. At long last, Aristotle additionally settled a framework of well-characterized and interrelated ideas to clarify the ethical quality of human activity, the achievement of good, and the flawlessness of the person.²

The term moral alludes to the group of the principles overseeing our activities and values and which capacity as the standard in a society. Some authors recognize it from the term ethics, while others consider it to be equivalent word. By and by, a slight distinction is seen, basically, ethics is prescriptive and when confused is viewed as negative and prohibitive. It discloses to us what we ought to or ought not to do so as to adjust to society's principles. It states, for example "You will not slaughter", and we must look at the repercussions on human services of this instruction, for instance on the question of abortion or prolonged life by technological means.³

Ethics is a branch of philosophy that deals with distinctions between right and wrong – with the moral consequences of human actions.⁴

The English word "Ethics" is derived from the Ancient Greek word *ēthikós* meaning "relating to one's character", which itself comes from the root word *ethos* meaning "character, moral nature. This word was transferred into Latin as *ethica* and then into French as *éthique*, from which it was transferred into English.

Rushworth Kidder states that "standard definitions of ethics have typically included such phrases as 'the science of the ideal human character' or 'the science of moral duty'"

Richard William Paul and Linda Elder define ethics as "a set of concepts and principles that guide us in determining what behavior helps or harms sentient creatures. The Cambridge Dictionary of Philosophy states that the word ethics is commonly used interchangeably with morality and sometimes it is used more narrowly to mean the moral principles of a particular tradition, group or individual. Paul and Elder state that most people confuse ethics with behaving in accordance with social conventions, religious beliefs and the law and don't treat ethics as a stand-alone concept.

The word ethics in English refers to several things. It can refer to philosophical ethics or moral philosophy—a project that attempts to use reason to answer various kinds of ethical questions. As the English philosopher Bernard Williams writes, attempting to explain moral philosophy: "What make an inquiry a philosophical one are reflective generality and a style of argument that claims to be rationally persuasive. Williams describes the content of this area of inquiry as addressing the very broad question, "how one should live". Ethics can also refer to a common human ability to think about ethical

problems that is not particular to philosophy. As bioethicist Larry Churchill has written: Ethics, understood as the capacity to think critically about moral values and direct our actions in terms of such values, is a generic human capacity. Ethics can also be used to describe a particular person's own idiosyncratic principles or habits.⁵

Clifford G. Christians define ethics as: 'The liberal arts discipline that appraises voluntary human conduct insofar as it can be judged right or wrong in reference to determinative principles'. In practice, ethics is a way of studying morality which allows decisions to be made when individuals face specific cases of moral dilemma. At their most praiseworthy, the journalist's tussles are going to be between the right of the public to know and some other moral tenet – perhaps the invasion of an individual's privacy – which would militate against publication.⁶

The Virtue Ethical Theories hold that ethical value of an individual is determined by his character. The character refers to the virtues, inclinations and intentions that dispose of a person to be ready to act ethically. The branches of Virtue Ethical Theories are: Individual Character Ethics (The individual character ethics hold that the identification and development of noble human traits help in determining both the instrumental and intrinsic value of human ethical interactions. These noble traits are courage, self-discipline, prudence, gratitude, wisdom, sincerity, understanding, benevolence, etc.), Work Character Ethics (The identification and development of reflective, practitioner, noble traits at works such as creativity, honesty, loyalty, honor, trustworthiness, civility,

dependability, shared work pride, empathy, etc. determine the intrinsic and instrumental ethical quality of work life.), Professional Character Ethics (The professional character ethics hold that self-regulation, loyalty, impartial judgment, altruism, truthfulness, public service determine the intrinsic and instrumental ethical quality of an individual associated with some communities.)

The System Development Ethical Theories state that the extent to which organization system is sensitive to the need to develop a work culture supportive of ethical conduct determines the ethical value of actions. Major types of System Development Ethical Theories Includes: Personal Improvement Ethics (The personal improvement ethics posits that the action is good if it is intended to promote the individual's personal responsibility for the continuous learning, improvement, holistic development and moral excellence.), Organizational Ethics (The organizational ethics hold that the action is right if it confirms the development of the formal and informal organizational processes which in turn enhances the procedural outcomes, respectful caring, innovation in ethical work culture and systematic justice.) and Extra organizational Ethics (The extra organizational ethics asserts that the action is right if it promotes or tends to promote the collaborative partnerships and respect the global and domestic constituencies representing the diverse political, economic, legal, social ecological and philanthropic concerns that affect the firm.)⁷

3.2 ARISTOTLE ETHICAL THEORY; VIRTUE ETHICS

Aristotle defines ethical virtue as a state of character concerned with choice, lying in a mean, i.e. the mean relative to us, this being determined by a rational principle, and by that principle by which the man of practical wisdom would determine it’.

Aristotle responded to the sort of state virtue by saying that it is a state that is concerned with choice, it is a state determined by a rational principle by which the man of practical wisdom would determine it. Aristotle’s view that moderation is good, and excess to be avoided, had been anticipated by popular morality and by poets as well as by plato.⁸

3.2.1 VIRTUE ETHICS

A virtue is a magnificent quality of character. It is a mien, very much dug in its owner—something that, as we state, goes right down, not at all like a propensity, for example, being a tea-consumer—to see, anticipate, esteem, feel, want, pick, act, and respond in certain trademark ways. To possess a virtue is to be a certain sort of person with a certain complex mindset. A significant aspect of this mindset is the wholehearted acceptance of a distinctive range of considerations as reasons for action. An honest person cannot be identified simply as one who, for example, practices honest dealing and does not cheat. If such actions are done merely because the agent thinks that honesty is the best policy, or because they fear being caught out, rather than through recognizing “To do otherwise would be dishonest” as the relevant reason, they are not the actions of an honest person. An honest person cannot be identified simply as one who, for example,

tells the truth because it *is* the truth, for one can have the virtue of honesty without being tactless or indiscreet. The honest person recognizes “That would be a lie” as a strong (though perhaps not overriding) reason for not making certain statements in certain circumstances, and gives due, but not overriding, weight to “That would be the truth” as a reason for making them.

An honest person’s reasons and choices with respect to honest and dishonest actions reflect her views about honesty, truth, and deception—but of course such views manifest themselves with respect to other actions and to emotional reactions as well. Valuing honesty as she does, she chooses, where possible to work with honest people, to have honest friends, to bring up her children to be honest. She disapproves of, dislikes, deplores dishonesty, is not amused by certain tales of chicanery, despises or pities those who succeed through deception rather than thinking they have been clever, is unsurprised, or pleased (as appropriate) when honesty triumphs, is shocked or distressed when those near and dear to her do what is dishonest and so on. Given that a virtue is such a multi-track disposition, it would obviously be reckless to attribute one to an agent on the basis of a single observed action or even a series of similar actions, especially if you don’t know the agent’s reasons for doing as she did ⁹

1. Prudence, also known as practical wisdom, is the most important virtue for Aristotle. In war, soldiers must fight with prudence by making judgments

through practical wisdom. This virtue is a must to obtain because courage requires judgments to be made.

2. Temperance, or self-control, simply means moderation. Soldiers must display moderation with their enjoyment while at war in the midst of violent activities. Temperance concerning courage gives one moderation in private which leads to moderation in public.
3. Courage is “moderation or observance of the mean with respect to feelings of fear and confidence.” Courage is “observance of the mean with regard to things that excite confidence or fear, under the circumstances which we have specified, and chooses its course and sticks to its post because it is noble to do so, or because it is disgraceful not to do so.” Concerning warfare, Aristotle believes soldiers are morally significant and are military and political heroes. War is simply a stage for soldiers to display courage, and is the only way courage can be exemplified. Any other action by a human is simply the copying a soldier's ways; they are not actually courageous.
4. Justice means giving the enemy what is due to them in the proper ways; being just toward them. In other words, one must recognize what is good for the community and one must undertake a good course of action.

Vices of courage must also be identified which are cowardice and recklessness. Soldiers who are not prudent act with cowardice, and soldiers who do not have temperance act with recklessness. One should not be unjust toward their enemy no matter the

circumstance. On another note, one becomes virtuous by first imitating another who exemplifies such virtuous characteristics, practicing such ways in their daily lives, turning those ways into customs and habits by performing them each and every day, and finally, connecting or uniting the four of them together.

Only soldiers can exemplify such virtues because war demands soldiers to exercise disciplined and firm virtues, but war does everything in its power to shatter the virtues it demands.

Since virtues are very fragile, they must be practiced always, for if they are not practiced they will weaken and eventually disappear. One who is virtuous has to avoid the enemies of virtue which are indifference or persuasion that something should not be done, self-indulgence or persuasion that something can wait and does not need to be done at that moment, and despair or persuasion that something simply cannot be accomplished anyway. In order for one to be virtuous they must display prudence, temperance, courage, and justice; moreover, they have to display all four of them and not just one or two to be virtuous¹⁰

3.3 FORMS OF VIRTUE ETHICS

While all types of excellence morals concur that goodness is focal and practical wisdom required, they vary by the way they consolidate these and different ideas to light up what we ought to do specifically settings and how we should live our lives in general. In what tails four particular structures are being sketched, taken by contemporary virtue ethics,

specifically, eudaimonist virtue ethics, agent-based and exemplarist virtue ethics, target-centred virtue ethics, and Platonistic virtue ethics.

3.4 PRACTICAL WISDOM

Another way in which one can easily fall short of full virtue is through lacking phronesis—moral or practical wisdom. The concept of a virtue is the concept of something that makes its possessor good: a virtuous person is a morally good, excellent or admirable person who acts and feels as she should. These are commonly accepted truisms. But it is equally common, in relation to particular (putative) examples of virtues to give these truisms up. We may say of someone that he is generous or honest “to a fault”. It is commonly asserted that someone’s compassion might lead them to act wrongly, to tell a lie they should not have told, for example, in their desire to prevent someone else’s hurt feelings. It is also said that courage, in a desperado, enables him to do far more wicked things than he would have been able to do if he were timid. So it would appear that generosity, honesty, compassion and courage despite being virtues, are sometimes faults. Someone who is generous, honest, compassionate, and courageous might not be a morally good person—or, if it is still held to be a truism that they are, then morally good people may be led by what makes them morally good to act wrongly! How have we arrived at such an odd conclusion?

The answer lies in too ready an acceptance of ordinary usage, which permits a fairly wide-ranging application of many of the virtue terms, combined, perhaps, with a modern

readiness to suppose that the virtuous agent is motivated by emotion or inclination, not by rational choice. If one thinks of generosity or honesty as the disposition to be moved to action by generous or honest impulses such as the desire to give or to speak the truth, if one thinks of compassion as the disposition to be moved by the sufferings of others and to act on that emotion, if one thinks of courage as mere fearlessness or the willingness to face danger, then it will indeed seem obvious that these are all dispositions that can lead to their possessor's acting wrongly. But it is also obvious, as soon as it is stated, that these are dispositions that can be possessed by children, and although children thus endowed would undoubtedly be very nice children, we would not say that they were morally virtuous or admirable people. The ordinary usage, or the reliance on motivation by inclination, gives us what Aristotle calls "natural virtue"—a proto version of full virtue awaiting perfection by *phronesis* or practical wisdom.

Aristotle makes a number of specific remarks about *phronesis* that are the subject of much scholarly debate, but the (related) modern concept is best understood by thinking of what the virtuous morally mature adult has those nice children, including nice adolescents, lack. Both the virtuous adult and the nice child have good intentions, but the child is much more prone to mess things up because he is ignorant of what he needs to know in order to do what he intends. A virtuous adult is not, of course, infallible and may also, on occasion, fail to do what she intended to do through lack of knowledge, but only on those occasions on which the lack of knowledge is not culpable. So, for example, children and adolescents often harm those they intend to benefit either because they do

not know how to set about securing the benefit or because their understanding of what is beneficial and harmful is limited and often mistaken. Such ignorance in small children is rarely, if ever culpable. Adults, on the other hand, are culpable if they mess things up by being thoughtless, insensitive, reckless, impulsive, shortsighted, and by assuming that what suits them will suit everyone instead of taking a more objective viewpoint. They are also culpable if their understanding of what is beneficial and harmful is mistaken. It is part of practical wisdom to know how to secure real benefits effectively; those who have practical wisdom will not make the mistake of concealing the hurtful truth from the person who really needs to know it in the belief that they are benefiting him.

Aristotle in his *Nicomachean Ethics* identifies approximately eighteen virtues that enable a person to perform their human function well. He distinguished virtues pertaining to emotion and desire from those pertaining to the mind. The first he calls "moral" virtues, and the second intellectual virtues (though both are "moral" in the modern sense of the word). Each moral virtue was a mean between two corresponding vices, one of excess and one of deficiency. Each intellectual virtue is a mental skill or habit by which the mind arrives at truth, affirming what is or denying what is not.¹¹

Moral virtue, or excellence of character, is the disposition to act excellently, which a person develops partly as a result of his upbringing, and partly as a result of his habit of action. Aristotle develops his analysis of character in Book II of the *Nicomachean Ethics*, where he makes this argument that character arises from habit—likening ethical

character to a skill that is acquired through practice, such as learning a musical instrument. Aristotle argues that a person's character is voluntary, since it results from many individual actions which are under his voluntary control.

Aristotle distinguishes the disposition to feel emotions of a certain kind from virtue and vice. But such emotional dispositions may also lie at a mean between two extremes, and these are also to some extent a result of up-bringing and habituation. Two examples of such dispositions would be modesty, or a tendency to feel shame and righteous indignation (*nemesis*), which is a balanced feeling of sympathetic pain concerning the undeserved pleasures and pains of others. Exactly which habitual dispositions are virtues or vices and which only concern emotions, differs between the different works which have survived, but the basic examples are consistent, as is the basis for distinguishing them in principle.

Some people, despite intending to do the right thing, cannot act according to their own choice. For example, someone may choose to refrain from eating chocolate cake, but finds himself eating the cake contrary to his own choice. Such a failure to act in a way that is consistent with one's own decision is called "akrasia", and may be translated as weakness of will, incontinence, or lack of self-mastery.¹²

Aristotle Stressed that the ideal citizen and ruler must possess certain virtues, such as wisdom, temperance and courage. And the work as a whole echoes Aristotle's dominant theme of moderation. Artificial Intelligence, if left unchecked will wreck serious havoc

and if completely neglected, will discourage societal and Industrial advancement, hence, ethicist have argued that Artificial Intelligence should better be regulated, this is what Aristotle termed moderation which is the bedrock of virtuous life.¹³

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CHAPTER FOUR

4.0. EVALUATION AND CONCLUSION

4.1 EVALUATION

The speculation of philosophers in the likes of Gottfried Leibniz, Thomas Hobbes and Rene Descartes that Human reason could be reduced to mechanical calculation or as systematic as algebra or geometry in the 17th century became a reality in 20th century with the study of mathematical logic which provided the essential breakthrough that made Artificial Intelligence seem plausible.

Building on Frege's system (Begriffsschrift), Russell and Whitehead presented a formal treatment of the foundation of mathematics in their masterpiece (Principia Mathematics in 1913), inspired by Russell's success, David Hilbert challenged mathematicians of the 1920s and 30s, to answer to this fundamental question: "can all of mathematical reasoning be formalized?" this question was answered by Godel's incompleteness proof, Turing's machine and church's lambda calculus.

Their answer proved that there were limits to what mathematical logic could accomplish, however, within those limits, any form of mathematical reasoning could be mechanized. The key insight was the essence of abstract symbol manipulation. This invention inspired a handful of scientists to begin discussing the possibility of thinking machines.

In the 19th century, Charles Babbage designed a programmable computer (The Analytic Engine), although it was never built, Ada Lovelace speculated that machine "might compose elaborate and scientific pieces of music of any degree of complexity or extent" (she is often credited as the first programmer because of a set of notes she

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Broadly defined, though not very helpful, epistemology has been conceived as the theory of knowledge. To be engaged in the study of epistemology is to wrestle with questions such as: how do I know that P, how can I be certain that what I am claiming to know is actually true? Merely believing something does not make it true.

Commenting on the meaning of epistemology, J.S. Crumley II noted that the greatest task of the epistemologists is responding to the skeptics. For him, epistemology is a normative discipline¹ despite this claim to normativity, scholars like Quine went ahead to place epistemology under science, a rigorous attempt to make epistemology descriptive and eliminates its autonomous and *a priori* features. Perhaps, it is a moribund or futile quest to display the scientific attire of epistemology.

To be sure, Quine was sympathetic to the critique of Gettier on the traditional account of knowledge and the undying quest for a fourth condition of knowledge, should it be reliabilism? Or should it be science?.² Thus, emerge several theories of truth and epistemic justification.

The several theories of epistemic justification aptly characterize by KolawoleOwolabi includes foundationalism, coherentism and contextualism. Owolabi noted that the pillars of foundationalism are the basic and non-basic knowledge³. It was the objections to foundationalism and coherentism that birthed both contextualism and behaviourism.

te that completely detail a method for calculating Bernoulli numbers with the engine.)

In the 20th century (1940s and 50s), a handful of scientists from variety of fields: Philosophy, Mathematics, Psychology, Engineering, Economics and Political Science began to discuss the possibility of creating an artificial brain. The field of Artificial Intelligence research was therefore founded as an academic discipline in 1956.

In 1950, Alan Turing published a landmark paper in which he speculated about the possibility of creating machines that think, he noted that “thinking” is difficult to define and devised his famous Turing Test. If a machine could carry on a conversation (over a teleprinter) that was indistinguishable from a conversation with a human being, then it was reasonable to say that the machine was thinking. This simplified version of the problem allowed Turing to argue convincingly that a thinking machine was at least plausible. The Turing test was the first serious proposal in the philosophy of Artificial Intelligence.

In 1955, Allen Newell and future Noble laureate- Herbert A. Simon created the logic theorist. The program would eventually prove 38 of the first 52 theorems in Russell and Whitehead’s *Principia Mathematica*, and find new and more elegant proofs for some. Simon said that they had solved the venerable mind/body problem, explaining how a system composed of matter can have the properties of mind. John Searle later referred to this philosophical position as strong AI; that machines can contain minds just as human bodies do.

In 1956, Dartmouth conference was organized by Marvin Minsky, John McCarthy and two senior scientists: Claude Shannon and Nathan Rochester of IBM. The proposal for the conference include this assertion: “every aspect of learning or any other feature of Intelligence can be so precisely described that a machine can be made to simulate it.”

The participants Include Ray Solomonoff, Arthur Samuel, Allen Newell, Herbert A. Simon among others, all of whom would create important programs during the first decades of AI research. At the conference, Newell and Simon debuted the “Logic Theorist” and McCarthy persuaded the attendees to accept “Artificial Intelligence” as the name of the field. The 1956 Dartmouth conference was the moment that AI gained its name, its mission, its first success and its major players, and is widely considered the birth of AI.

In 1967, in Japan, Waseda University initiated the WABOT project in 1967, and in 1972, the WABOT-1 was completed, that became the world’s first full-scale intelligent humanoid robot. Its limb control system allowed it to walk with the lower limbs and to grip and transport objects with hands, using tactile sensors. Its vision system allowed it to measure distances and directions to objects using external receptors, artificial eyes and ears. And its conversation system allowed it to communicate with a person in Japanese, with an artificial mouth.

In the first decades of the 21st century, access to large amount of data (known as big data), faster computer and advanced machine learning techniques were successfully applied to many problems throughout the economy.¹

Today, Artificial Intelligence is the cynosure of technology as its limitless Humanity, Engineering, Medical Care, Finance, Marketing and even Trading. There seem to be no discipline that Artificial Intelligence cannot thrive and also improve, hence the advent of Artificial Intelligence has been appreciated by many people.²

Statistics reveals that death rate in Nigeria fell from 23.4 per 1,000 people in 1968 to 12.1 per 1000 people in 2017. This achievement was realized by medical technology innovation.³

Be that as it may, Artificial Intelligence has been Argued to result to a great havoc that mankind cannot handle in the long run. Autonomous weapons are artificial intelligence systems that are programmed to kill. In the hands of the wrong persons, these weapons could easily cause mass casualties.⁴

First the machine will do a lot of jobs for us and not be super intelligent. That should be positive if we manage it well. A few decades after that though the intelligence is strong enough to be a concern. I agree with Elon Musk and some others on this and don't understand why some people are not concerned I think the development of full artificial intelligence could spell the end of the human race. "Bill Gates".

Once humans develop Artificial Intelligence, it will take off on its own and redesign itself at an ever-increasing rate. “Stephen Hawking”.

I think we should be very careful about artificial intelligence. If I had to guess at what our biggest existential threat is, it's probably that. So we need to be very careful “Elon Musk”.

It is a new revolution in my mind, the revolution of artificial intelligence, machines that will learn, that will be able to do things much better than we know how to tell them.⁵ Apple co-founder- “Steve Wozniak”

The question of whether Artificial Intelligence has done and will do more harm than good is a serious debated question. Artificial Intelligence has undoubtedly come to stay; the future world seems incomplete and impossible without Artificial intelligence as it has become the deal and cynosure of applied technology in this century.

In support of Aristotle, renowned tech entrepreneur in the likes of Elon Musk of Tesler, Steve Wozniak of Apple Company, Bill Gates of Microsoft among others have vehemently argued for the moderation of Artificial Intelligence.

It on this note I recommend that:

1. AI should benefit people and the planet by driving inclusive growth, sustainable development and well-being.
2. AI systems should be designed in a way that respects the rule of law, human rights, democratic values and diversity, and they should include appropriate

safeguards- for example, enabling human intervention where necessary- to ensure a fair and just society.

3. There should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them.
4. AI systems must function in a robust, secure and safe way throughout their life cycles be continually assessed and managed.
5. Organizations and individuals developing, deploying or operating AI systems should be held accountable for their proper functioning in line with the above principles.
6. Public and private investment in research and development should be facilitated to spur innovation in trustworthy AI.
7. Foster accessible AI ecosystems with digital infrastructure and technologies and mechanisms to share data and knowledge.
8. Ensure a policy environment that will open the way to development of trustworthy AI systems.
9. Empower people with the skill for AI and support workers for a fair transition.
10. Co-operate across borders and sectors to progress on responsible stewardship of trustworthy AI.⁶

4.2 CONCLUSION

Artificial Intelligence is inseparable of man and the society; whatever outcome Artificial Intelligence brings will definitely affect man and the society either positively or negatively. Artificial Intelligence will wreck a colossal menace to mankind and the society if proper measures are not deliberately taken to ensure moderation in this noble field-AI.

Philosophy becomes so relevant in that it critically studies, research, think, analyses and predicts measures by which the society should run. Social philosophy is the study of question about social behavior and interpretations of society and social institutions in terms of ethical values rather than empirical relations.⁷

Philosophy helps to coordinate the various activities of the individual and the society. It helps us to understand the significant of all human experience. Philosophy also critically evaluates and analyses the variety of human experiences. For several generations now, philosophy has concerned itself almost wholly with such concepts as cause, action, matter, mind, truth, mechanism, organism, number, class, infinity, objective, subjective among others. Philosophy is the mother of all disciplines, hence its essence and importance to the society cannot be overemphasized .⁸

Ethics which is derived from the Greek word- ethos, is one of the core branches of philosophy that deals with our we ought to live. Ethics seeks to resolve questions of

human morality by defining concepts such as good and evil, right and wrong, virtue and vices, justice and crime.⁹

Ethics is also concerned with what is good for individuals and society and is also described as moral philosophy. It is however on this ground that Aristotle stresses the "virtue ethics" in his Nicomachean Ethics to depict that moderation is essential, it is what makes up a virtuous person.

The application of Aristotle's virtue ethics- moderation to the contemporary global issues of Artificial Intelligence will immensely contribute to the safety and peace of Man and the society.

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