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Changing Trends in Intellectual Property with Advent of Artificial Intelligence

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ABSTRACT

According to the words of renowned jurists, the law can have its ambit either as a science or as an art, but situations arise where one will be forced to judge it in light of both these aspects. The law dealing with Artificial Intelligence (AI) is one of this kind. It is basically the science of study and design of intelligent agents, while it takes the form of an art when the system as a whole perceives its environment and takes actions which maximises its chances of success. The concept evolved in the western world in mid-20th Century and has become a major factor which controls the global market in the modern era. With the changing global trends, India is also taking giant steps in this field to be a front runner with major policy formulations. The stream being full-fledged with novel inventions which are brain child of intellects, requires protection from infringement and there arises the role of laws regarding Intellectual Property Rights (IPRs). As the concept is much technically oriented, it is an uphill task to formulate sui generis laws. So protection to these are rendered through various laws in IP such as Copyrights, Patents, protection to Designs and Semi-Conductor, Integrated Circuit Layouts.

The seminal aim of this paper is to facilitate a layman with the basic knowledge that he requires while dealing with an innovation relating to AI and legal rights enforced. For this, the paper will be divided into various parts, where the introductory part deals with basic notions of AI, flashing light into fields like what does AI actually mean, the nature, scope and objective of the subject and the fields in which it stamped its authority. The paper also deals with technical oriented aspects of AI in detail and the law protecting and controlling the concept. It also covers the impact of subject in modern day examining both economical and contemporary aspects with changing trends.

Keywords: *Artificial Intelligence, Autonomous Transportation, Empowered educational system.*

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I. ARTIFICIAL INTELLIGENCE AND ROAD TO DEVELOPMENT

The term Artificial Intelligence include within itself vivid scope for a wide range of technological processes, making it a tricky situation to understand and hence create policy for panelling development. Various attempts were made to provide a broad overview of the key technologies that compose with in the umbrella term referred to as AI and to analyse the key common factors and issues to its different disciplines. The field of AI offers tremendous promises as solutions to various risks involved and optimisation techniques for a variety of problem statements we face. However, AI as a concept also throws up key normative and practical questions related to ethics and governance and that will play a central role with increased adoption of these AI enabled technologies. While some of the basic tensions between efficiencies promised by AI, and the criticisms figured out by those advocating greater caution in its adoption may appear irreconcilable, thereby making it important to delve into these points of conflict, which make us able to rethink some of the existing legal and regulatory paradigms, and help in creation of new ones if required.[3]

The field of AI is a revolutionary one that has awed researchers and users equally over time. Right from the period of Alan Turing's paper in the 1950s to the era of sci-fi movies, there has been a wide spread debate on what AI can do and how human beings will be affected by its effects. In many ways, this thought processes involved and manner of speculation are not surprising and rather they are very much typical in the case of any evolving fields in this sector about which complete knowledge is yet to be ascertained. The only difference that s shadowed is that AI will constantly evolve and hence, being able to foresee the next change that comes up becomes a big task. In such a manner, advances could be set in motion depending on the various needs and not always the other way round of creating a need and then using an innovative concept following its development. A good amount of collaboration between academia and the public and private sectors thus becomes necessary. This engagement will encourage innovation in an effective, efficient and useful manner. Continuous dialogues and its responses between these three pillars will help to preclude the rare possibility of an innovation being at odds on considering with human interest.

The AI continuum comes to the fore front here with AI innovations that fall under and reach augmented, assisted and autonomous intelligence helping the variety users understand and decide which level of intelligence is helpful and required in order to make out better results.

[3] Anand, Shruthi: 'Artificial Intelligence-Literature Review' , Journal for the Centre for Internet and Society, (2015:2)

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This will make the acceptance of AI an easier task among the masses. At the same time, the continuum could also be used to understand various economic ramifications, the vivid complexity of use and decision-making implications which can be better cited. While the various academia and the private sector conduct research on various AI problems in the sector with diverse implications in mind and concept, the public sector, with its various initiatives such as Digital India, Make in India, etc. can help to identify areas where parts of the AI continuum can be utilised efficiently to increase reach of the initiatives, effectiveness and efficiency, thus helping to give direction to the innovative concept of AI research prevalent in the country. A collaborative innovation environment established with regular dialogue between academia and the private and public sectors will help intensively to identify newer fields and operations among the population. For example, AI could be used as a concept to provide holistic and proactive advisory delivery mechanism to the population through establishment of public call centre and linking information from various government sources[4]. At the same time, the plethora of big data generated from the interactions involved in the above process and other digital initiatives can be used efficiently to draw sophisticated conclusions. Collaboration between the three pillars of the technological whirlwind could further help get a comprehensive view of problems and may help in finding intelligent and innovative ways to increase the efficiency and effectiveness of services which are delivered to the society. Furthermore into the concept these can be looked at through the lens of the AI continuum which will help to provide the benefits of various effects of AI evolution to the masses according to their needs.

As we approach 2017, AI is turning out to be a central part of the deep digital transformation of the fourth industrial revolution, as it is being called by various technicians, whose threshold we are now crossing with each other. As big data fuelled machine learning, perception and control develops, the concept of AI will come to make its impact in our family, home and working lives perhaps as much as any other industrial changes have its effects over the last 2 centuries. Early examples of AI in action include the use of AI in legal services, autonomous vehicles and engaging in smart contracts. AI will challenge legal assumptions in short, medium and long term policy formulations. Policy makers and regulators are consequently starting to grapple and fight with what AI means for law and policy making and the necessary technical and legal frameworks. The year of 2016 has seen important policy announcements in the EU, Japan, the UK and USA which helped them make big strides. In order to successfully manage the conceptuality of AI projects, lawyers in the field will need to keep up to date with AI related

[4] 'Artificial Intelligence and Robotics-2017.Leveraging Artificial Intelligence and Robotics for sustainable growth', available at http://www.pwc.in, March 2017, accessed on 24th February 2019

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regulatory and policy developments, and also engage in developments in spheres of contract, intellectual property and tort law as the courts decide disputes and make new case law. AI promises to be another fascinating area for IT lawyers[5].

The penetration of self-driven cars, robots and fully-automated machines into the fields, which are currently being used in various economies around the world for making heavy monetary benefits, is only expected to increase with the passage of time. As a result, the dependency of entities and individuals on AI enabled systems is also expected to increase proportionately with increasing time. This may be evidenced from the fact that AI is expected to bolster its economic growth by an average of 1.7% across various industries by the completion of 2035. However, in order to safeguard the development and integration of AI systems along with the industrial and social sector, it is important to ensure that the various implications in current concerns that exist with regard to AI systems are appropriately and fruitfully addressed. The most prevalent issues being in the concept being, (i) the issue of imputation of liability procedures or the issue of holding an AI to be responsible for its various actions and (ii) the issue which is pertaining to the relationship or interplay between ethics, the law and AI and various robotics systems.

Whilst addressing the aforementioned issues, it would be imperative to say that the regulators undertake a reasonable and balanced approach between the concept of protection of rights of citizens, individuals and the need to encourage technological growth. Failure to do so may either cause various impacts in the protection of rights or on the other hand may result in causing adversely impact creativity and innovation amidst the revolution. In addition, the regulations should also help to undertake steps to provide for guidance and clarity so as to the rights and obligations of various programmers or creators of AI systems, so as to crystallize the broad ethical standards to which they are required to abide and exist to whilst programming or creating AI and robotics systems more user friendly. Due to the lack of legal jurisprudence on this subject and the effects caused by it, it is hoped that in the near future legal and tax principles that are established, will not only foster the development of AI but also ensure the fact that the necessary safeguards are in proper place. Artificial Intelligence and the technology are on the one side of the life that always cause interest and surprise the people with the new ideas, topics, innovations, and products etc. that result out of it. AI is still not implemented as the way in which films representing it, however there are many important practices engaged to reach the level and to make effective competition in market, like sometimes the robots that they show in TV or in such allied patterns. Nevertheless, the hidden projects and the development

[5] Kemp, Richard: 'Legal Aspects of Artificial Intelligence', available at https://www.kempitlaw.com, November 2016, accessed on 3rd April 2019

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in industrial companies also bolster the need of development in the field[6].

Artificial intelligence as an established concept is awakening fear and enthusiasm in equal measures in various walks of the society. Some have likened the various advances in AI to the concept of summoning the devil and there are concerns that result in the concept that AI threatens to end humanity. AI can scare people, perhaps due to the effects of science fiction and various other notion that machines will take all of our jobs, so therefore wake up and do unintended things is the basic idea behind the scheme. However, where some see dangers in the field, others see various opportunities. It's very much likely that the upwards trend in capabilities of AI systems will continue and that systems will eventually be made capable of solving a wide range of tasks, and that the adoption of AI within the stream would cause to spread amongst many industries will continue. Evidence suggests that AI is currently unable to reproduce as that of human behaviour or surpass human thinking but it's likely to stay a complementary workforce tool assisting the human needs for a very long time to come. However, steady gradual improvements in the field of AI could reach a point where AI exceeds the whole current expectations. The continued development of AI as a concept will depend on moral public opinion making process regarding the benefits of it and acceptability of it, on businesses front continuing to gain competitive advantage from using it, and enhancements in continued funding for research and development would lead to betterment of it.

It is difficult so as to effectively determine where the period in which this use of technology might create new jobs in the future, but yet it is easier to see which tasks that AI might take and perform from humans which may be in a much better manner in a much better pace, with much better precision. It's likely that any routine, or repetitive task will be automated. This inherent shift to automation has happened and evolved out for centuries, but what is different in today's world is that it affects many more industries than the older ones. It's likely that we will still adapt to various technological changes by inventing entirely new types of work related to the concept, and by taking advantage of our uniquely human capabilities it would certainly develop.

Historically, automating based on a task has made it quicker and cheaper in technical front, which has increased demand for humans to carry out various tasks around those which can't be effectively automated. In addition to the concept, rather than replacing jobs altogether, technology has changed the way of and nature of some jobs, along with the skills required to do them successfully. As the workplace, jobs and tasks change according to the needs of the

[6] Desai, Nishith: 'The Future is here :Artificial Intelligence and Robotics', available at http://www.nishithdeshai.com, May 2018,Vol.2 accessed on 23rd February 2019

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day, knowledge will be for sure needed to be updated, and skills will need to adapt with the various needs. Soft skills, such as collaboration, flexibility and resilience with the concept, will become increasingly important. The challenge will be to develop and enhance our skills as quickly as the technological advancements are being made is a greater task. Therefore, there may arise a need that we may need to ask ourselves, the question what the health and safety risks might be if the technology advances faster than that of the human skills required for working with it. In the future, it is an ever established fact that if over-reliance is placed on technology people could well become disconnected from the various processes which may be involved in performing the task. They may become de-skilled or fail to appreciate how bad things are causing its effects when they go wrong. Whilst an efficient AI system can present data and recommendations, the decisions on what action that are to be taken is still the one for humans. However, if humans blindly follow automated instructions, without knowing how to question or alter them, this could have negative implications. Greater numbers of workers in the field will be new to their roles and tasks with resulting implications incapable of determining for risk management. Therefore ongoing workforce training and re-learning will be increasingly important as it is for the future.

In a future where benefits and risks cannot be calculable, it will be easy if ascertained with the fact that how humans choose to use the technology that decides whether its applications make results good or bad. To harness the power and to ascertain benefits out of machine learning we need to decide what we want machines to learn and, or do, and what questions we want them to answer in particular. It is clearly important that controls and goals for AI are set, and that a lot more empirical work needs to be done to gain a better understanding of how goal enabling systems should be built, and what values the machines should have for incurring better results. Once this is done in perfection, it will provide an idea of what sort of things should be put in a regulatory framework for successful results, or whether existing regulatory frameworks are robust enough to gain the results.

If AI is seen to contribute to business success by way of enabling a better understanding of customers, along with the task of a more rapid response to their needs, then its uptake within the world of work is likely to continue as needed. In the future, many tasks will have the opportunity of being input from AI. However, rather than replacing humans, it is easy that the combination of AI and humans that is likely to bring the greatest benefits to the working world should be used in the fore front so as to make feasible results. Therefore, we might conclude that it will be based on the concept of how AI interacts with humans that will influence its role in the future world of workability of it. If human values are carefully articulated and embedded

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into the AI enabled systems then socially unacceptable outcomes might be prevented to a greater extend.

What were once dumb machines are becoming smarter and smarter in today's world and are being enough for people to communicate with them effectively on a human level. By collaborating with various companies, and other systems on their behalf, Artificial Intelligence makes everything it touches smarter, and by learning the concept as it goes, it continues to accelerate its own usability and insurability. For businesses to capitalize on AI-powered and enhanced interactions with machines, the conversation should start well inside the organization. Leaders should begin the conceptuality with existing channels and make them smarter enough to perform the task. From that point, they need to ask fundamental questions about interactions with customers and other employees, and consider them in a new lime light. Current interfaces are based on User Interface design with a universal limiting factors to be considered as a screen. It will be important to train the UI team to take various advantages of AI technology, and re-think interfaces without screen limitations as such. From experimenting with existing channels, companies can effectively develop an approach to help multidimensional conversations. It's time for the purpose to fundamentally re-examine the concept of how people interact not just with technology, but also with their business is the main stream need today. That approach will prove to be critical as AI takes on the major and primary role of interacting with both the customers and employees. AI can be acting as a key point of distinction for your business versus competitors in various fields, and so should be considered a core competency as to demanding of C-level investment and strategy among the fields. Much more than just another technology tool to help increase efficiency or generate value to the core, AI is no longer about how your company does things, but it's who you are that decides on the matter.

AI predictions as per Technology Vision 2017, make the following predictions with regard to AI that, in five years, more than one half of customers will select services based on AI instead of various traditional brands. In seven years, most interfaces will not be having a screen and will be integrated into various daily tasks. In 10 years, digital assistants will be acting so pervasive to the fact that they'll keep employees productive 24*7*365, operating in the background for workplace interactions, and by creations like video summaries right after an important meeting, it makes better results.

At the end, there has been in this research through the AI definitions, brief history, and about applications of AI in public, the applications of AI in military, ethics of AI, and the three rules of robotics. However, this is not the end of AI, there is more to come from it in terms of conceptualities too in near future, who knows what the AI can do for us in the future, maybe it

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will be a whole society of robots governing our world in years to come.

II. FIELDS WITH AI AS FUTURE

Artificial Intelligence is bound to progress heavy leaps further in coming years to become a commonplace mechanism. The technology has assisted computers to utilize copious amounts of data as in decision-making processes, and also enabled these machines to learn on their own about various concepts. Technology giants such as Google, Apple, and Facebook are already investing their money, effort, and time towards the tasks of integrating Artificial Intelligence in day to day activities. These companies have also taken initiatives to evangelize the mass the concepts about AI's capabilities and limitations. Soon, there will be no industry left as to where AI is not being used. The application of this technology in fact has already stretched across domains as such to law, political science, policy, and economics. Artificial Intelligence will soon permeate into various areas of warfare, autonomous transportation, education, and space exploration. Let's look through a list of possible and probable futuristic applications surrounding the concept of AI, which will sure make human lives much easier and better on this Earth[7].

(A) Autonomous Transportation

The complete transition to an efficient AI-guided transport system will soon be a reality, as the major global leader companies like Google, Uber, and General Motors are striving hard to establish themselves at the top of this market. From Google to Uber to General Motors all that they want is a piece of the fast-growing market for driverless vehicles. The algorithms which are designed as such to enable machines to learn from human inputs will be having various crucial roles in ensuring that these systems operate smoothly and efficiently without any flaws. These vehicles can take the form of efficient passenger cars, like the kind as Uber runs now or the one Google has been testing for a number of years. But the quest isn't simply as limited to the scope of passenger transportation. Otto, a start-up which is working on driverless trucks was recently acquired by the market giant Uber. With this, we are probably looking forward to many major changes around the industry which deals with shipping products around the country.

(B) AI Empowered Education System

In near future, AI-powered education systems will be used to learn individual's' preferences, and by aggregating the data, these efficient systems will be capable of accelerating education

[7] Available at *https://www.shponline.co.uk/technology artificial-intelligence-discussions-and-conclusions,* accessed on 24th April 2019

research and the development of enabled new tools. The future of education will witness the utilization of major intelligent tutors and other AI technologies to deliver personalized education at a larger scale. The use of AI will widen the educational access, making learning a lifelong system, and making retraining easier. Earlier predictions surrounding the technology suggested that in future it will be very much possible to process individual student data, so that someone needing the scope of extra attention can be imparted recognized and helped. By 2030, we can expect the line between classroom and individual learning to almost fade away the means.

(C) Employment Generation in AI Era

Artificial Intelligence is being used proactively, introduced and implemented across different sectors globally in the new era. The technology has already found its scope of application and significance for different job roles, as performing the same task humans do, with more precision and efficiency as to more than that was expected out of them. The standout aspect of the concept lies in the fact that not only is the time taken to perform the job reduced, but AI also helps in eliminating the chances of human errors. The future will steadily witness the technology replacing arduous human tasks, implicating into various job opportunities across newer avenues. Furthermore, the extensive use of this automation will help in lowering the cost of goods and services, and thus reducing the cost of living to a greater extent.

(D) Contribution of AI to Entertainment Sector

The entertainment industry is expected to transform in a bit different and efficient manner. The use of AI systems as such will make the industry more interactive, personalized, and engaging in the near future. Proliferation in the use of sensors and hardware will witness major changes in virtual reality, haptic and companion robots increasingly enter the family home. Moreover, user would be able to interact effectively with entertainment systems conversationally. The technology will also enable media providers to personalize entertainment to unimaginable levels than that available in the present day. That day is probably not that far when you will be made able to create your own entertainment channel leveraging the conceptuality in power of AI.

(E) Concept of Healthcare and Sophisticated Systems

AI promises to ensure the capability to automate medical diagnostics by mining into patient records and the scientific literature. This technology will enable and allow doctors to focus primarily on dimensions of patient care while utilizing their experience to guide the process. Personalized medicine will soon become a reality as owing to the data obtained from patient

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records, wearable, mobile apps, and personal genome sequencing which are making great impact in the field. IBM's Watson is already used in assisting oncologists to process patient data for them to help in making better decisions about treatment. However, full-fledged implementation of the technology across the healthcare and its varied landscape will take time as regulations are currently posing as a major challenge to the successful implementation. The FDA is finding an effective way to deal with the issue of balancing privacy and data access.

(F) Robotics in Domestic Service

Within the next couple of decades, one will be able to witness the advent of AI machines with the inbuilt ability to deliver packages or clean the offices. The robots will make use of the Cloud connection embedded into it to share data for accelerated learning. Moreover, the use of low-cost 3D sensors and accessories will aid in speeding up the development of perpetual technology which can be made. Also, these machines will be able to better interact with the humans, owing to progress in speech comprehension techniques and such allied strategies. However, in the most foreseeable future, these robots are in turn more likely to remain constrained with narrow commercial applications. The cost and complexity which are involved behind designing such systems makes it a roughly challenging task to implement the perceptual algorithms and its use into the robots.

(G) Impact among Low resource Communities

AI and the predictive analytics techniques will much facilitate government agencies in better way of allocation of limited resources by helping them to forecast environmental hazards or building into code violations. Responsible organizations can make use many of AI-based planning to distribute excess food from restaurants to various food banks and shelters. However, these capabilities will take some time to reflect its effects, as the investment in this arena is under-funded as the case is currently. But, once the concept is implemented properly, the technology will help in improving lives for even the poorest members of the society.

(H) Impact on concept of Predictive policing

Policing is yet another major domain where the future of AI enabled technology can have a major stake. Within a decade, cities will be fully relying on AI technologies for detecting and predicting crime and scene of crime. Surveillance agencies will then start to use the power of AI in automatically processing CCTV and drone footages, which in turn will help in easily and swiftly identifying anomalous behaviour and find out the illegal scenario. Various studies suggest that in the States, 20 of the country's 50 largest police departments have utilized predictive policing software effectively, to forecast the probable places where crimes and allied

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scenes might occur, or to identify probable victims. However, with the fears surrounding around discrimination based on the idea of biased data these are not being used effectively. These fears have resulted to a greater extend in police and communities currently for having limited capacity to assess such complex technological systems.

(I) Astronomy and AI

Artificial Intelligence is not basically a new technology for NASA, as the international body for space has already utilized many unmanned shuttles, rovers and probes to explore distant galaxies, to enter into outer space which could have otherwise taken several years to make such results. These AI-powered vehicles are capable of identifying obstacles, like craters, and then to find safe paths of travel around them. For the case of future, AI can be instrumental in times of emergency in the field, as the technology can help astronauts to identify and prevent problems based on various situations before they occur. Data and photographs collected from the Martian surface as such were earlier furnished by autonomous land rovers, thus reflecting on the scope of utilizing AI for the purpose of space exploration.

(J) AI in Combat world

Artificial Intelligence as a concept enters the battlefield, as to the time being significant research is being undertaken to develop major weapons which are capable of targeting, and firing on their own. Thus to the use of AI for this purpose is a controversial topic, because of the fact that the consensus dictates that the humans have ultimate control and feasibility over any kind of weaponry. Some technology leaders have in fact have gone to the extent of calling an outright ban to the concept, on the production or use of autonomous weapons, as they are lacking human control.

III. THE ROAD AHEAD

Machines are of better prospect than ever at working with the data of text and language. Facebook can clearly read out a description of images for helping visually impaired people. Google also does a decent job of suggesting terse replies to emails as they effectively go through the content. Yet software still can't be used really to understand the meaning of our words and the ideas that we share with them. Mitchell describes today's software as one that has stuck behind what the concept of the mathematician Gian Carlo-Rota called "the barrier of meaning." Some leading companies AI research teams are trying to figure out how to clamber over it and make better results. One strand of that work as a concept aims to give machines the kind of grounding as in common sense and as the physical world that basically underpins our own thinking and conceptuality. Facebook researchers are trying to teach the software systems

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to understand reality by watching various videos. Others are basically working on mimicking what we can do to perform the act with that knowledge about the world. Google has been tinkering with various software that tries to learn metaphors and similes. The reality gap impeding the robot revolution.

Getting a robot to do anything that requires specific programming for a particular task is very difficult. They can learn various operations like grasping objects from and within repeated trials. But the process is comparatively and relatively slow. One promising shortcut for performing the function so as to make desired outcome is to have robots train into virtual, simulated worlds, and then being downloaded and then that hard-won knowledge incorporated into physical robotic bodies. Still that approach is afflicted by the reality gap and as a phrase describing how the skills a robot learned in simulation do not always work when transferred with and to a machine in the physical world[8].

(A) Guarding the world against AI hacking

The software that runs our electrical grids and circuits, security cameras, and cell phones is plagued by various security flaws. We shouldn't expect much from the software for self-driving cars and domestic robots to perform anything to be any different. It may in fact be in fact much worse. There's the established evidence that the complexity of skills engaged in machine-learning software introduces new avenues of attack which is much hard to tackle.

Researchers showed this year, effectively that you can hide a secret trigger well inside a machine-learning system that causes it much to flip into an established evil mode at the sight of a particular and peculiar signal. The team at NYU devised a particular street-sign recognition system imbibed with a particular technique that functioned normally and unless it saw a yellow post. Attaching one of the sticky notes as to a stop sign in this, Brooklyn caused the system to report the sign as a speed limit and to work on it. The effective potential for such tricks might pose problems for self-driving cars. The threat is considered much serious enough that researchers at the world's most prominent and established machine-learning conference convened on a one-day workshop on assessing the threat of machine deception earlier this year. Researchers discussed the concepts of issuing many fiendish tricks like how to generate handwritten digits so that look normal to humans, but appear something as different to software

(B) Graduating beyond Board games

Alphabet's champion system called as the Go-playing software evolved rapidly in 2017. In

[8] Available at *https://fstechadvisory.accenture.com/artificial-intelligence-technological-vision-2017-conclusions-and-predictions*, accessed on 27th April 2019

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May, a more powerful version was used to beat Go champions in China. Its creators, research unit DeepMind, subsequently built a market version, AlphaGo Zero that learned the game without looking into or studying how humans play. In December, another upgrade effort birthed known as Alpha Zero, which can learn to play chess and Japanese board game Shogi and play effectively with human. That avalanche of having notable results in the field is impressive to a greater extend but is also a reminder of AI software's limitations. Chess, shogi, and Go are complex but all of them have relatively simple rules and gameplay strategy visible to both opponents. They are as good as a good match for computers with ability to rapidly spool upon through many possible future positions. But in most situations and problems in life are not so neatly and possibly correctly structured. That's why, the DeepMind and Facebook both started working much on the multiplayer videogame StarCraft in 2017 so as to make better predictable higher grade system results. Neither have yet gotten very far to attain the concept successfully.

Even without any new progress in the areas listed above, many aspects of the mastered economy and society could change on swiftly greatly if existing AI technology is widely adopted and incorporated into efficient systems. As companies and governments rush to do just that and to incur feasible results, some people are much more worried about accidental and intentional harms that might be caused by AI and machine learning[9].

Various suggestions for making giant steps forward in the field of Artificial Intelligence in the near future includes:

- Enabling Beneficial AI Research and Development tactics which can make the field better and overcome various present day demerits that they suffer
- Global governance on the concept should be regulated in a better way, Race conditions should be ascertained to avoid any kind of misogynistic, discriminatory or detrimental uses and International Co-operation should be promoted with more research establishments interlinking the concepts of efficient scientists across the globe
- Economic impacts should be properly ascertained and efficiently dealt with, Labour shifts and its problems should be tackled effectively, Inequality should not be promoted and Technological employment should be revolutionised

[9] Available at *https://www.analyticsindiamag.com/10-areas-artificial-intelligence-going-impacts-lives-future*, accessed on 27th April 2019

- Accountability to the system and generators should be made an essential characteristic of the device, Transparency in case of coding software used is a need of the hour and Explainability of various ways and ambits of application to the public is a must
- Surveillance systems and structures should be made and used appropriately to govern the system, Privacy issues should be fought with and be effectively tackled and Civil liberties of the system and the people should be decided and followed correctly
- Fairness should be the basic concept in terms of the use of the system, Ethics engaged in the creation of the system must be positive and Human Rights and allies concepts must be followed effectively
- Political Manipulations should not be encouraged and interferences from the side of politicians must be avoided in way of generation of a particular software and Computational propaganda must be made and practiced accordingly
- Human dignity should be the essential consideration kept in mind while generating an AI enabled system, Autonomy must not be given to the developers and there must be a strict mechanism looking into the working of the system and Psychological impact on people with the effective working of the system should also be ascertained to the core
- Human health should be an area of concern and those systems that can cause harm to human life should not be created even though it is necessary to make such things in concept of a combat in a war field, Augmentation statistics and mechanisms should be correctly followed and Brain Computer interfaces must be used as an effective tool in generation of system
- AI safety oriented mechanisms should be used to the core to make establish a system which is free of major flaws
- Security in terms of nation and Cyber security should be made one of the effective concept in the establishment of the system
- Autonomous weapons even though made should be compelled to follow necessary guidelines, principles and various other enforcement mechanisms so that no harm could be made as such
- Catastrophic and Existential Risks should be combated effectively and efficiently and the new coded system developed should be one which is technologically stable
- Artificial General Intelligence and Super Intelligence tactics and practices should be used and established so as to garner effective results as suitable to an effective use to propel the needs of the human kind.

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