

A Study on Exponential Advancement of Unmeasurable Artificial Intelligence in Destructing the Power of Human Decision Making in Near Future

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Abstract:

Machine intelligence will in near future replace human capabilities in almost all organizations across the world. Manufacturers, Services sectors and institutions will rapidly move on to Artificial superintelligence that will surpass human decision making power to bring significant risk for humanity. Advances in artificial intelligence will transform modern life by reshaping transportation, health, science, finance, and the military. This development turns out to be 'bad' or 'extremely bad' for humanity.

Keywords: Artificial super intelligence, Back Propagation, Internet of Things, Machine learning

I. INTRODUCTION

The field of Artificial Intelligence (AI) was officially born and christened at a 1956 workshop. The goal was to investigate ways in which machines could be made to simulate aspects of intelligence. Advances in AI technology have opened up new markets and new opportunities for progress in critical areas such as health, education, energy, and the environment and will have more social consequences. In recent years, Machines have surpassed humans in the performance of certain specific tasks, such as some aspects of image recognition. Experts forecast that rapid progress in the field of specialized artificial intelligence will continue. Although it is very unlikely that machines will exhibit broadly applicable intelligence comparable to or exceeding that of humans in the next 45 years, it is expected that machines will reach and exceed human performance on more and more tasks. Self-driving technology might replace millions of driving jobs over the coming decade. In addition to possible unemployment, the transition will bring new challenges, such as rebuilding infrastructure, protecting vehicle cyber-security, and adapting laws and regulations [1]. New challenges will also arise from applications in law enforcement, military technology, and marketing for both AI developers and policy-makers [2]. Several sources provide objective evidence about future AI advances: trends in computing hardware [3], task performance [4], and the automation of labor [5]. Artificial Intelligence (AI) revenues will reach \$47 billion in 2020, from \$8.0 billion in 2015 [6] And According to a research from CB Insights Venture Scanner listed 1500 AI start-ups with over \$9.1 billion in total funding from 73 different countries[7]. By 2018, it is expected that most of the world's largest companies will exploit intelligent apps to improve customer experience and refine their offers. While AI is improving the quality, speed, and cost of goods and services, it is also displacing large numbers of workers. Many businesses continue to automate their operations instead of hiring additional workers. Artificial intelligence has intersected with the Internet of Things (IoT) to give what is commonly known as "intelligent things" or network of intelligent devices.

II. INTELLIGENCE

Computer is only a symbol manipulator and does not know what it is doing and presently it does not have a sense of being in this world, It does not know that it is adding money to someone's account even when it goes through a sequence of steps that results in doing so. one would have observed that definitions of intelligence are usually human centric. An Intelligence is obviously about making the right choices and doing the right thing and An intelligence is the power of imagination. An intelligent system can be built around the

ability to represent and model the world and reason about change in the model. Fig 1 shows a real time system which has a dictionary of defined attributes of intelligent system i.e, trained system which reads data from the field and process to achieve its assigned goal and regulate it automatically as and when needed.

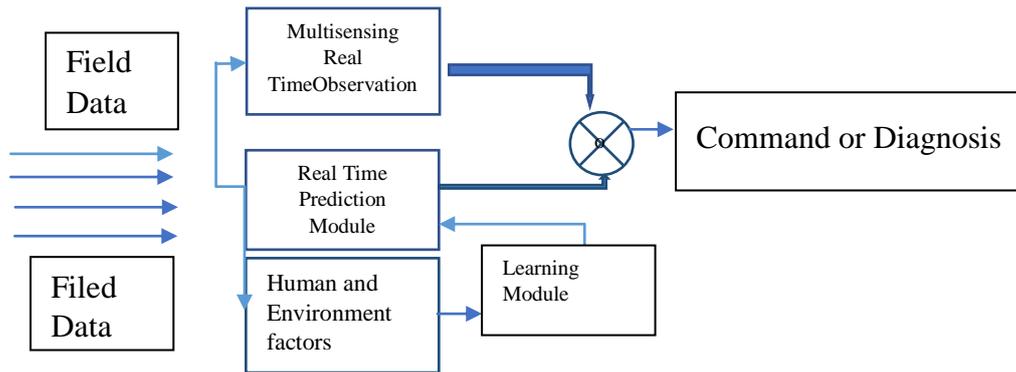


Fig 1. Block diagram for Real time system with intelligence capability to monitoring the running system

2.1 Artificial Intelligence

Artificial Intelligence is nothing but Machine Intelligence. We call programs as intelligent if they exhibit behaviors (that would be regarded intelligent if they were) exhibited by human beings. AI is the study of techniques for solving (exponentially) hard problems in polynomial time by exploiting knowledge about the problem domain. *AI is the study of mental faculties through the use of computational models.*

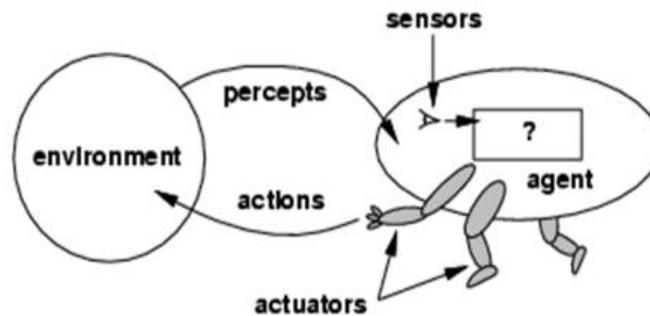


Fig 2. Agent system for task to be executed.

In General, An agent or many agents in distributed system perceive its environment with help of sensors and responds to the environment through its actuators. Fig 2 display how a simple agent system reacts with environment. This kind of process generally takes place in all expert system which deliver accurate results. the agent is software that is fine tuned for different application differently and they are classified as

- a). *Reflex agents (simple / model-based)* respond immediately to percepts,
- b). *Goal-based agents* act in order to achieve their goal(s), possible sequence of steps,
- c). *Utility-based agents* maximize their own utility function,
- d). *Learning agents* improve their performance through learning .*we are downloading our common intuition to the computer.*

Though AI penetrates everywhere across the world the major areas of AI are by and large segmented into eight areas, namely

1. Transportation ,
2. Home/Service Robots ,
3. Healthcare ,
4. Education ,
5. Low-resource Communities
6. Public Safety and Security ,
7. Employment and Workplace ,
8. Entertainment .

2.2 Artificial General intelligence(AGI)

AGI is the intelligence of a machine and it could successfully perform any intellectual task that a human being can. It is a primary goal of some artificial intelligence research and a common topic in science fiction and future studies.

The Turing Test (*Turing*)

In the Turing Test, a machine and a human both converse sight unseen with a second human, who must evaluate which of the two is the machine.

The Coffee Test (*Wozniak*)

A machine is given the task of going into an average American home and figuring out how to make coffee. It has to find the coffee machine, find the coffee, add water, find a mug, and brew the coffee by pushing the proper buttons.

The Robot College Student Test (*Goertzel*)

A machine is given the task of enrolling in a university, taking and passing the same classes that humans would, and obtaining a degree.

The Employment Test (*Nilsson*)

A machine is given the task of working an economically important job, and must perform as well or better than the level that humans perform at in the same job. These are a few tests that cover a variety of qualities that a machine might need to have to be considered AGI, including the ability to reason and learn.^[8]

2.3 Artificial Super Intelligence(ASI)

Artificial superintelligence is a term referring to the time when the capability of computers will surpass humans.. We can tentatively define a superintelligence as *any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest.*" [9].

Robotics and the rules

Special purpose robots will deliver packages, clean offices, and enhance security, but technical constraints and high costs will continue to limit commercial opportunities for the foreseeable future. Robotic is so far considered as the companion of Human.

Three levels of robotics currently existing

A robot may not injure a human being or, through inaction, not allow a human being to come to harm. A robot must obey the orders given to it by human beings, except where such orders would conflict with the first Law. A robot must protect its own existence as long as such protection does not conflict with the first or second law.

Machine Learning System

For any fields that could be medicine, atomic project or image processing, voice recognition or pattern reorganization, the training process must be done first to keep as a reference for checking a new object that could be an image or parts or a person. The fig 3 shows the sequence of different tasks in giving training to an application for extracting features of data or objects. Similarly to identify a new object different task for extracting its feature then comparing with training data.

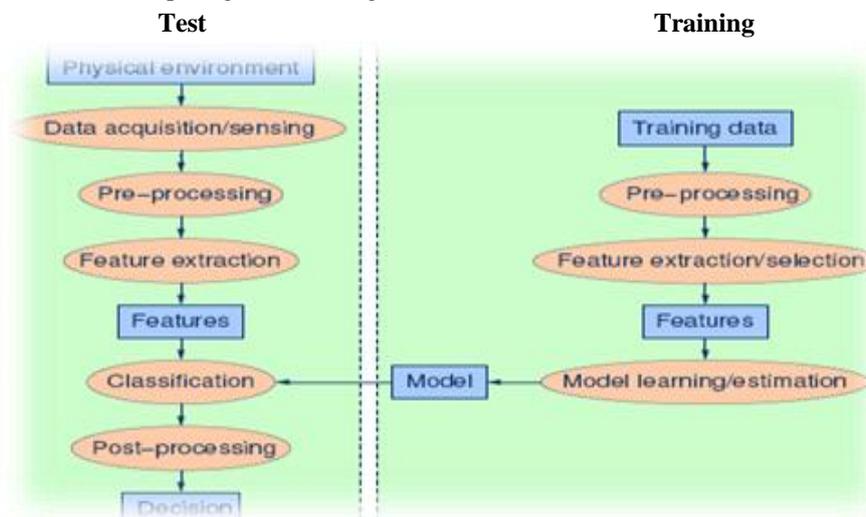


Fig 3 .Flow charts in general for most of the AI applications including image processing, pattern recognition.

III. INTERNET OF THINGS

IoT is an evolution of machine to machine (M2M) communication, which enables networked devices to exchange information and perform actions without the manual assistance of humans. The effective efforts put by many manufacturer, vendors of IoT is to build to work as to How universe is running without human intervention or human assistance.

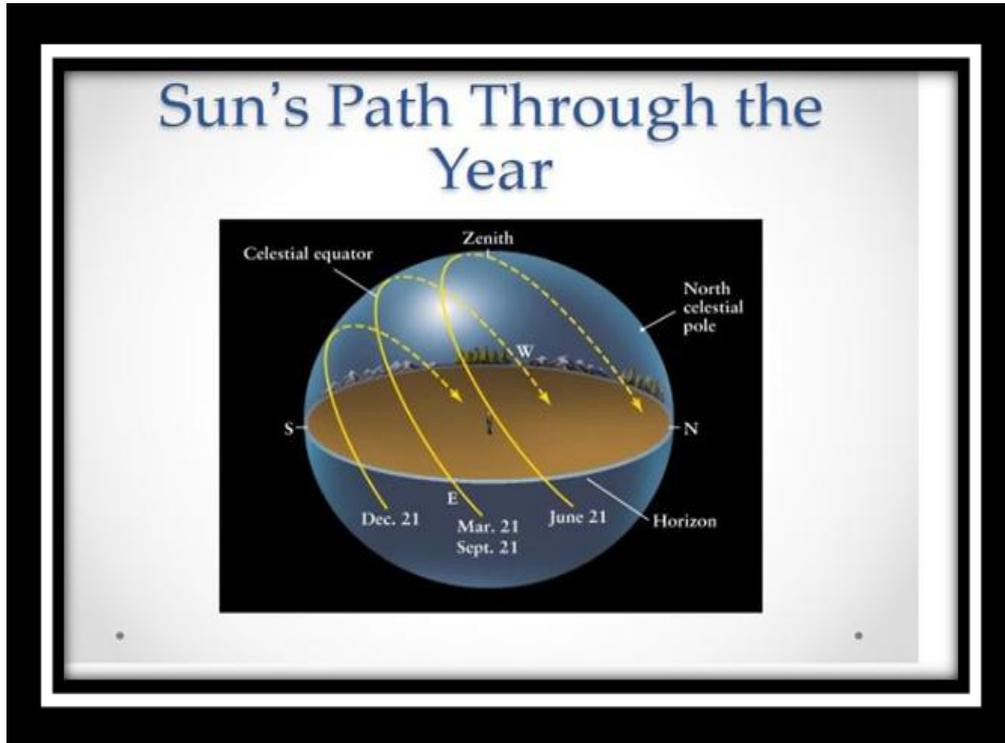


Fig 4. Natural intelligence for Sun path without human assistance/control

For instance, the Earth rotates continually in resulting day and night. Fig 4 shows different paths of sun in different dates. Astronomer are only to study and understand how it rotates and what are the differences when its behavior differs. So far, no attempt is made to change its travelling direction or time adjustment. only we adjust towards natural behavior like tsunami or cyclone or wild fires. The Bermuda Triangle, also known as the Devil's Triangle, is a loosely-defined region in the western part of the North Atlantic Ocean, where a number of aircraft and ships are said to have disappeared under mysterious circumstances

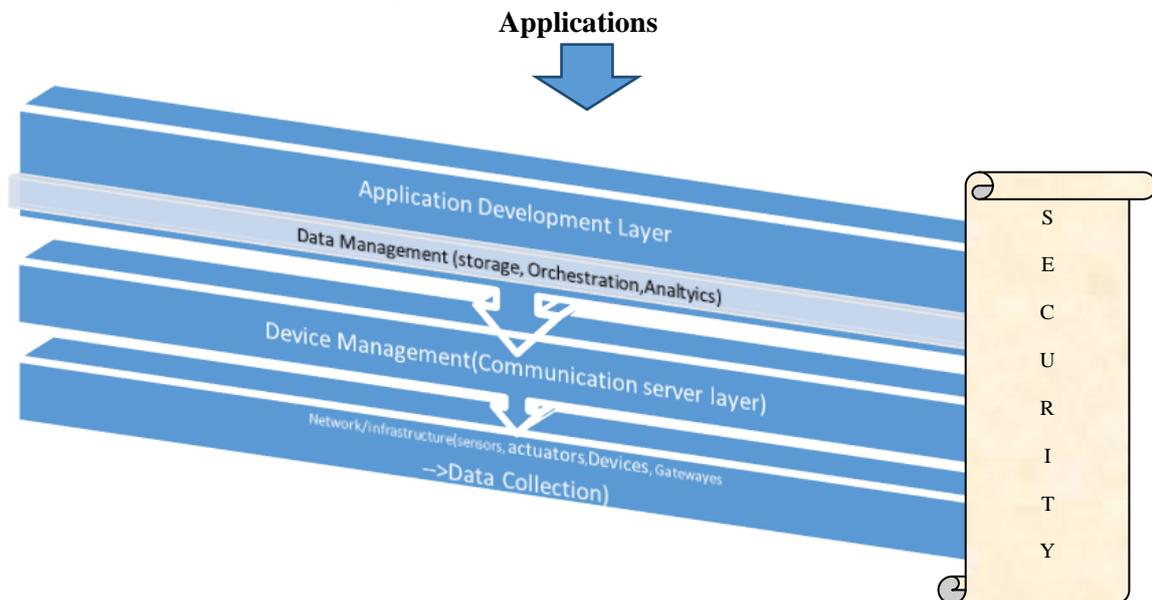


Fig 5. Flow Chart for IoT Platform

IV. AI GROWTH IN DIFFERENT AREAS

On one side population increases and on the other side AI increases its capacity to do all the jobs/tasks that are being done by human. Substantial increases in the future uses of AI applications, including more self-driving cars, healthcare diagnostics and targeted treatment, and physical assistance for elder care can be expected. Many have already grown accustomed to touching and talking to their smart phones. People’s future relationships with machines will become ever more nuanced, fluid, and personalized. *Society is now at a crucial juncture in determining how to deploy AI-based technologies in ways that promote rather than hinder democratic values such as freedom, equality, and transparency.* Longer term, AI may be thought of as a radically different mechanism for wealth creation in which everyone should be entitled to a portion of the world’s AI-produced treasures. The field of AI is shifting toward building intelligent systems that can collaborate effectively with people, including creative ways to develop interactive and scalable ways for people to teach robots.

4.1 Area of Inventory and purchasing & production

Currently, companies are already automating some of their production lines to the point where they can run unsupervised for several weeks. While it may seem like a transfer of tasks from people to machines, for these companies, it is a step toward a larger goal of creating the fully self-organizing factory. Here, machines can largely organize themselves, supply chains will automatically link themselves together, and orders will be directly converted into manufacturing information that is incorporated into the production process.[10]

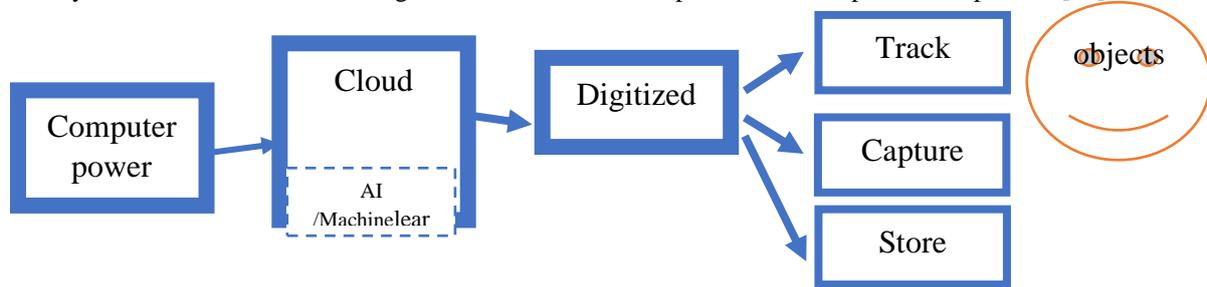


Fig 6. General concepts of AI in all expert system

Several factors have fueled the AI revolution. Foremost among them is the *maturing of machine learning, supported in part by cloud computing resources and wide-spread, web-based data gathering.* Machine learning has been propelled dramatically forward by “*deep learning,*” a form of adaptive artificial neural networks trained using a method called backpropagation. This leap in the performance of information processing algorithms has been accompanied by significant progress in hardware technology for basic operations *such as sensing, perception, and object recognition.* New platforms and markets for data-driven products, and the economic incentives to find new products and markets, have also contributed to the advent of AI-driven technology.

4.2 Transportation

A growing body of research is devoted to the idea that a wide array of devices can be interconnected to collect and share their sensory information. Such devices can include appliances, vehicles, buildings, cameras, and other things. Autonomous transportation will soon be commonplace and, as most people’s first experience with physically embodied AI systems, will strongly influence the public’s perception of AI. As cars will become better drivers than people, city-dwellers will own fewer cars, live further from work, and spend time differently, leading to an entirely new urban organization.

Table 1. Summary of automated commercial cars capabilities

Sl no	context	Automated Functionality	Release Date
1	Parking	Intelligent Parking Assist system	Since 2003
2	Parking	Summon	Since 2016
3	Arterial & Highway	Lane departure system	Since 2004 in North America
4	Arterial & Highway	Adaptive cruise Control	Since 2005 in North America

5	Highway	Blind spot monitoring	2007
6	Highway	Lane Changing	2015

According to the study made during 2008-2009 by the association for the advancement of Artificial Intelligence(AAAI) on different context automated functionalities were developed and run ok as shown in the table 2.[11] It Could be seen that self-driving and remotely controlled delivery vehicles, flying vehicles, and trucks. Peer-to-peer transportation services such as ridesharing are also likely to utilize self-driving vehicles. Shared transportation may displace the need for public transportation or public transportation may change form towards personal rapid transit that uses small capacity vehicles to transport people on demand Ethical questions arise when programming cars to act in situations in which human injury or death is inevitable, especially when there are split-second choices to be made about whom to put at risk. Drones that can fly, swim, and drive, or flying quadcopters to become a common means of transportation by 2030 (although prototypes exist today) Over the next fifteen years, coincident advances in mechanical and AI technologies promise to increase the safe and reliable use and utility of home robots in a typical North American city.

4.3 Health care

AI-based applications could improve health outcomes and quality of life for millions of people in the coming years—but *only if they gain the trust of doctors, nurses, and patients*. A small group of companies control the HER (electronic health recording) market, and user interfaces are widely considered substandard, including annoying pop-ups that physicians routinely dismiss. The problem in medicine is not to recognize what is in the image—is this a liver or a kidney?—but rather to make a fine-grained judgement about it. Strict regulations govern these high-stakes judgements. Specialized motion Tracking devices... and the emerging (inter)connectedness between the home environment and health-monitoring devices have created a vibrant new sector of innovation. Better hearing aids and visual assistive devices will mitigate the effects of hearing and visionloss, improving safety and social connection. Personalized rehabilitation and in-home therapy will reduce the need for hospital stays.

4.4 Education

Though quality education will always require active engagement by human teachers, AI promises to enhance education at all levels, especially by providing personalization at scale It can be argued that AI is the secret sauce that has enabled instructors, particularly in higher education, to multiply the size of their classrooms by a few orders of magnitude—class sizes of a few tens of thousands are not uncommon. The current absence of sophisticated use of AI technologies in schools, colleges, and universities may be explained by the lack of financial resources as well as the lack of data establishing the technologies’ effectiveness. While formal education will not disappear, the Study Panel believes that MOOCs(Massive open online courses) and other forms of online education will become part of learning at all levels, from K-12 through university, in a blended classroom experience.

4.5 Finance/banking sector

With targeted incentives and funding priorities, AI technologies could help address the needs of low-resource communities. Budding efforts are promising. One of the more successful uses of AI analytics is in detecting white collar crime, such as credit card fraud. Cybersecurity (including spam) is a widely shared concern, and machine learning is making an impact. As dramatized in the movie *Minority Report*, predictive policing tools raise the specter of innocent people being unjustifiably targeted. But well-deployed AI prediction tools have the potential to actually remove or reduce human bias.

4.6 AI in agriculture

These activities are slowly changing but the most important recent applications can be grouped as follows:

- 1) Methodological approaches: Modelling and simulation methods of dynamical systems and processes in agriculture, Control, operation and optimization methods, Modelling issues for agro-industry, e.g. uncertainty, randomness, time-variability, strong external disturbances and lack of predictability, and Artificial intelligence (AI) techniques for modelling, control and operation.

2) Technological approaches:

- Photosynthesis of crops under environmental stresses
- Soil/plant atmosphere cycle
- Metabolism of farm animals
- Harvesting systems
- Food processing
- Grading, drying, storage of crops including fruits and vegetables
- Automation, e.g. robotics, vehicle guidance, autonomous vehicles
- Internal transport and packaging
- Distribution and marketing automation
- Heating, cooling, lighting, and energy saving.

V. METHODOLOGY

It is a difficult task to say what constitutes ‘intelligence’ or ‘progress’ and whether intelligence can be measured or at least compared as ‘more’ or ‘less’ as a single dimension. Furthermore, for study purposes a term of intelligence at a level that may surpass humans or where technical intelligent systems might contribute significantly to research – but ‘human-level intelligence’ is a rather elusive notion that generates resistance.

- Algorithmic complexity theory
- Algorithms revealed by computational neuroscience
- Artificial neural networks
- Bayesian nets
- Cognitive science
- Embodied systems
- Evolutionary algorithms or systems
- Faster computing hardware
- Integrated cognitive architectures
- Large-scale datasets
- Logic-based systems
- Robotics
- Swarm intelligence
- Whole brain emulation
- Other method(s) currently known to at least one investigator
- Other method(s) currently completely unknown
- No method will ever contribute to this aim

Among all listed above Cognitive science with 47.9%, Integrated cognitive architectures with 42.0%, Algorithms revealed by computational neuroscience with 42.0%, Artificial neural networks with 39.6% and Faster computing hardware with 37.3% are the approaches recommended by the experts for AI developments [8]

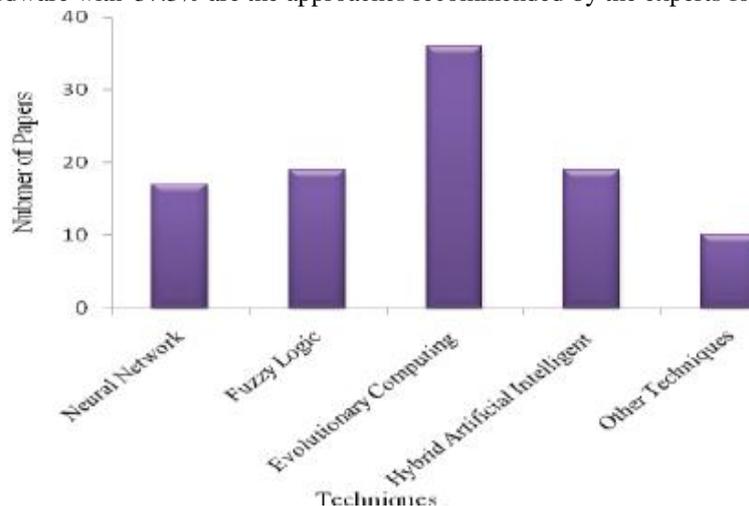


Fig 7. No of papers published on different Techniques

The survey on the number of publications and the methods on the subject of Power Stabilization System found in IEEE/IET/Elsevier /Springer databases in spans over the last 15 years from 1995 to 2010, and the number of publications and the method applied in the specified period are shown in Fig. 7. Neural Network, Fuzzy logic, Evolutionary Computing and Hybrid AI are dominated and Evolutionary Computing Technique is the most appreciated and recommended one among all techniques. According to the tally Google provided to *MIT Technology Review*, it published 218 journal or conference papers on machine learning in 2016, nearly twice as many as it did two years ago.

VI. ANTICIPATIONS IN FUTURE AI

The measure of success for AI applications is the value they create for human lives. Going forward, the ease with which people use and adapt to AI applications will likewise largely determine their success. AI could widen existing *inequalities of opportunity* if access to AI technologies—along with the high-powered computation and large-scale data that fuel many of them—is unfairly distributed across society. As a society, we are *underinvesting resources in research* on the societal implications of AI technologies. Private and public dollars should be directed toward interdisciplinary teams capable of analyzing AI from multiple angles. Absent sufficient technical expertise to assess safety or other metrics, national or local officials may *refuse to permit a potentially promising application*—or green light a sensitive application that has not been adequately vetted. As AI applications engage in behavior that, were it done by a human, would constitute a crime, courts and other legal actors will have to puzzle through whom to hold *accountable and on what theory*. AI applications could increasingly shift *investment from payroll and income to capital expenditure*. Depending on a state budget's reliance on payroll and income tax, such a shift could be destabilizing. Like other technologies, AI has the *potential to be used for good or nefarious purposes*. A vigorous and informed debate about how to best steer AI in ways that enrich our lives and our society is an urgent and vital need—the essential idea that has continued to drive the field forward. Although the separation of AI into sub-fields has enabled deep technical progress along several different fronts, synthesizing intelligence at any reasonable scale invariably requires many different ideas to be integrated.

VII. CONCLUSION

Beyond doubt the rapid development of AI penetrating to each and every corner of life around the world. The fear in mind of every working people is strongly disturbing their normal life in thinking of future destruction. This threat in technology revolution is recurring one like computerization in 70s and PC revolution in 90s and Y2K in 2000 and ERP later. All threats were smoothly resolved in phased manner by scientists/engineering community. So, The AI threat rising day by day will be gradually solved in convincing manner by AI applications support for all organization's profit in business and easy way of handling of every one's job.

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