

“Artificial Intelligence: An Asset or Liability”

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ABSTRACT

“The development of full artificial intelligence could spell the end of the human race. It would take off on its own, and re-design itself at an ever increasing rate. Humans, who are limited by slow biological evolution, couldn’t compete and would be superseded” is well said by Stephen Hawking. Over the last century, as a civilisation, we have travelled far. Experimenting with technology and innovating at a rapid pace. Will future generation thank us for this? As history has shown us, every technological advance is accomplished by legal question. Our modern technology era will be faced by an unusual number of such questions growing out of what we will term “artificial intelligence”. The facts about the AI- driven digital era are becoming familiar but remain astonishing. Owing to the proliferation of AI in high-risk areas, the pressure is mounting to design and govern AI to be accountable, fair, and transparent. How we can achieve and through which framework is one of the central question addressed in this issue. The research argues that special emphasis should be laid to the prospective of treating AI as an autonomous legal personality, separate subject of law and control. Some questions are versions of traditional issue, such as tort liability for semi-autonomous or autonomous auto mobile collision. Even if you solve these legal issues, you are still left with the question of punishment. By 2040, there is even a suggestion that sophisticated robots will be continuing a good chunk of all the crimes in the world. Thence, this research will direct as how there are ethical and moral dilemmas that should be considered regarding AI and legal industry. In case of the equalization of human rights and the robot, we encounter the problem of the current legislative infrastructure, and the lack of effective regulatory mechanisms for this subject.

INTRODUCTION

“The development of full artificial intelligence could spell the end of the human race. It would take off on its own, and re-design itself at an ever increasing rate. Humans, who are limited by slow biological evolution, couldn’t compete and would be superseded”, was the very well said words of Stephen Hawking. The name artificial intelligence is credited to John McCarthy who along with Marvin Minsky and Claude Shannon organised the Dartmouth Conference in 1956. The conference was to be a “two month, ten-men study of artificial intelligence... on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described, that a machine can be made to stimulate it.”¹ “We call programs ‘intelligent’ if they exhibit behaviours that would be regarded intelligent if they were exhibited by human beings.”² “The fundamental goal of this research is not merely to mimic intelligence or produce some clever fake. AI wants the

¹ Chapter 1 Page 6, Patterson, Introduction to Artificial Intelligence and Expert System

² By. Prof. Herbert Simon

genuine article, machine with minds”. Artificial Intelligence traditionally refers to an artificial creation of human-like intelligence that can learn, reason, plan, perceive or process natural language.

Artificial intelligence is broadly classified into three categories-

Narrow Artificial Intelligence/ Weak Artificial Intelligence- Narrow AI is use to perform some specific task in real time, as they pull information from a specific dataset. As a result, they are unable to perform outside the single task that they are designed to perform. Like checking weather or google assistant, etc. They are considered weak because they are no closer to human like intelligence. They cannot perform by themselves, so they need to be instructed by human intelligence. However they help us making our lives easier by increasing our efficiency by updating us beforehand.

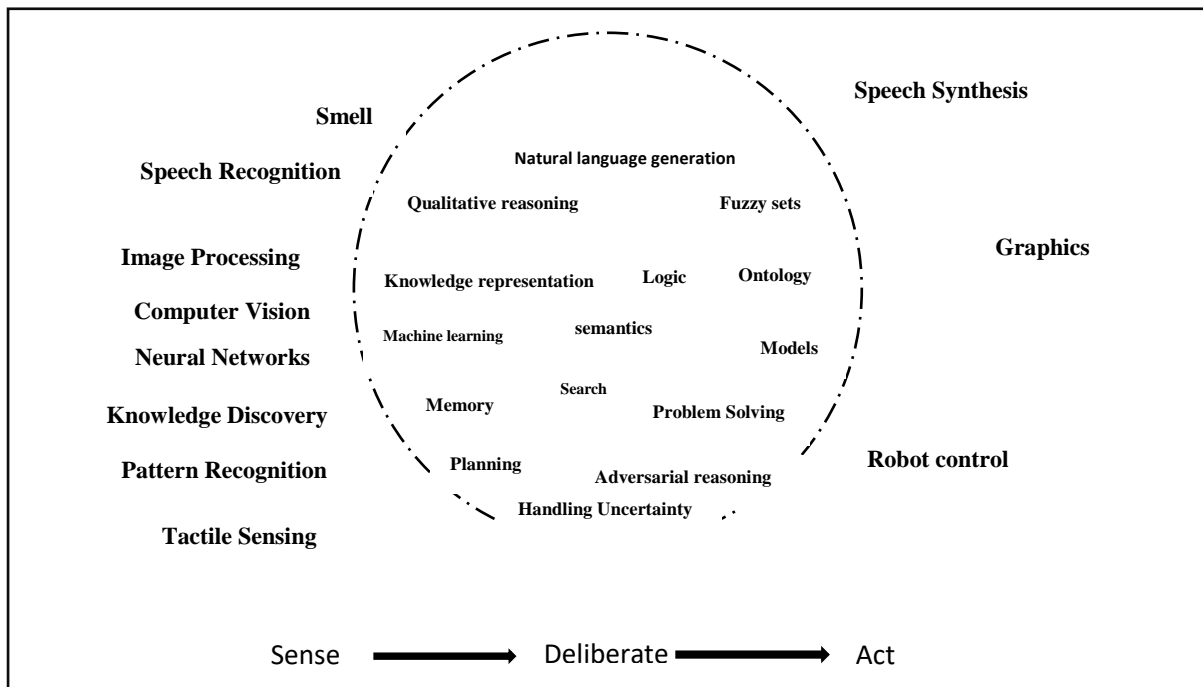
General Artificial Intelligence/ Strong Artificial Intelligence- General AI is considered strong as it can exhibit human intelligence which means that they can perform intellectual task that a human being can. One of the example is the Robotics Artificial Intelligence. Although machines are taking place of human beings but to achieve true human like intelligence, they will need to be capable of experiencing consciousness. Auto-pilot flying and drones are some of the example of such AI.

Super Artificial Intelligence- “Any Intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest” said by Nick Bostrom. A Super AI will surpass human intelligence in all aspects from creativity to general wisdom and problem solving. This will lead machines to be capable of exhibiting intelligence that we haven’t seen in the brightest amongst us. At both the macro and micro scale, an ASI would propel humanity to heights once left to the realm of science fiction. They can accomplish task so instantaneously which is so close to the speed of light that time bends and seconds become decades. It can overcome the annoying restraint of time itself. Sub-Inspector KP-BOT country’s first humanoid Robocop, Kochi is an example of such ASI.³

CURRENT USES OF ARTIFICIAL INTELLIGENCE

Philosophers have long dwelt over the mind and the human being that possesses that mind. Cognitive psychologists have studied how people acquire, process and store information. They investigate human memory, perception and decision making. Linguists have studied the use of language. Cognitive neuroscientists have investigated the biological system that make up our brains, the seat of our minds. Economists have studied rational behaviour and decision making. Mathematicians have explored formal methods and the limits of logical reasoning. The study of artificial intelligence can be seen to derive from the above disciplines which can broadly be grouped under the name cognitive science. An intelligent agent would need a multitude of faculties. The agent should be able to sense the world around it, deliberate over its options, and act in the world.

³ 2019, 20 February , P.S. Gopikrishnan Unnithan



(Figure.1)

The different areas of study is listed in Figure.1 are all part of the enterprise of building intelligent systems. The topics have been arranged in the figure so that sensing to the world is to the left, and acting in the world to the right. The world in the figure is the world inhabited by us humans, and we can think of the agent as a robot in the same world interacting with human beings. The topics inside the dashed circle are concerned with what we might call ‘thinking’. The sense-deliberate-act cycle would describe the activity of an autonomous agent in the world. As humans, we use the sense of sight, sound, touch, smell and taste. Of these, our current research focus is on the first three, through some work has been done in using smell as well artificial noses. Visual perception is perhaps our most used sense, so much that the word ‘seeing’ has acquired a sense of ‘understanding’. A variety of topics in computer science now address visual perception. Chief amongst those, depicted in the figure are pattern recognition and computer vision, now areas of interest in their own right. The former studies the method of recognizing the pattern while the latter deals with employing pattern recognition and other techniques to process still and moving images to identify and extract other kind of information which is often preceded by image processing dealing with the acquisition and pre-processing of image data. Humans have developed sound as the principle medium of conveying symbols, in the form of language. The disciplines of speech recognition and natural language understanding are concerned with the transduction of speech into language, and language into concepts respectively. A tactile sensor would allow a metal being to shake a human hand gently, and would also be used to sense the surroundings in some situations. The topics on the right are concerned with acting in the world. On the language side, we have natural language generation and speech synthesis that express concepts in natural language and covert the words in the language into sounds respectively.

But the core of intelligence lies in the centre, dealing with knowledge, language and reasoning. These are the means that make imagination possible: The ability to conceptualize and create models of the world around us; to categorize things and create memories of our experiences; to reason with what we know and make predictions. By predicting actions into the future; to handle uncertainty and incomplete knowledge; to take into account the options of adversaries and collaborators, and to formulate problems and search for their solutions. It has been empirically observed that neural networks and fuzzy reasoning systems can serve a bridge between symbolic representations and analogue signals, and vice versa. A fuzzy controller would take a symbolic command like ‘warm’ and generate an appropriate signal to a heater in some contraption. The physical systems that interact with the world. The neuro-fuzzy shell is instrumental in mediating between the symbolic reasoning system and the external continuous world.

INTELLECTUAL PROPERTY AND ARTIFICIAL INTELLIGENCE-

Artificial Intelligence technologies have a very profound impact on humans and therefore it is a good time to take a close look at the state of research and exploitation of these technologies. Patent provide a vulnerable information by means of assessing trends in research as they reveal the areas of innovation that inventors are focussed on.⁴ It becomes possible to track changes over time and identify which jurisdictions are the most patenting activity. Moreover it includes useful information such as the name of the applicant, date of patent application and technical details of the invention. Patent applications and the related patent families in AI can be identifies by using patent databases. Patents are intellectual property rights. These are territorial, meaning that they provide protection only in the jurisdiction where a patent is granted.⁵ In many fields of technology many patent applications filed do not meet one or more of the patentability criteria and are not granted or are withdrawn for many different reasons. A patent family may include members for which patents have been granted, and others not granted or still under patent examination. Once a patent is granted, a patent holder has the right to exclude others from making, using, selling, offering for sale, or importing for those purposes, the claimed invention, without their consent. However it becomes difficult to identify the exact patent family related to AI because of the lack of an agreed definition and the changing concepts of what constitutes AI.

The AI Patent Boom

Looking back over the time, the data show that interest in the field has grown constantly since the early 1980s. Between 2006 and 2011, patent publications grew by about 8 percent a year but between 2012 and 2017, they grew up by an average of 28 percent a year.

Categorization of AI technologies

Patents can be categorized according to their technological content. A report of WIPO (World Intellectual Property Organization) analysed and prepared a scheme which is based on

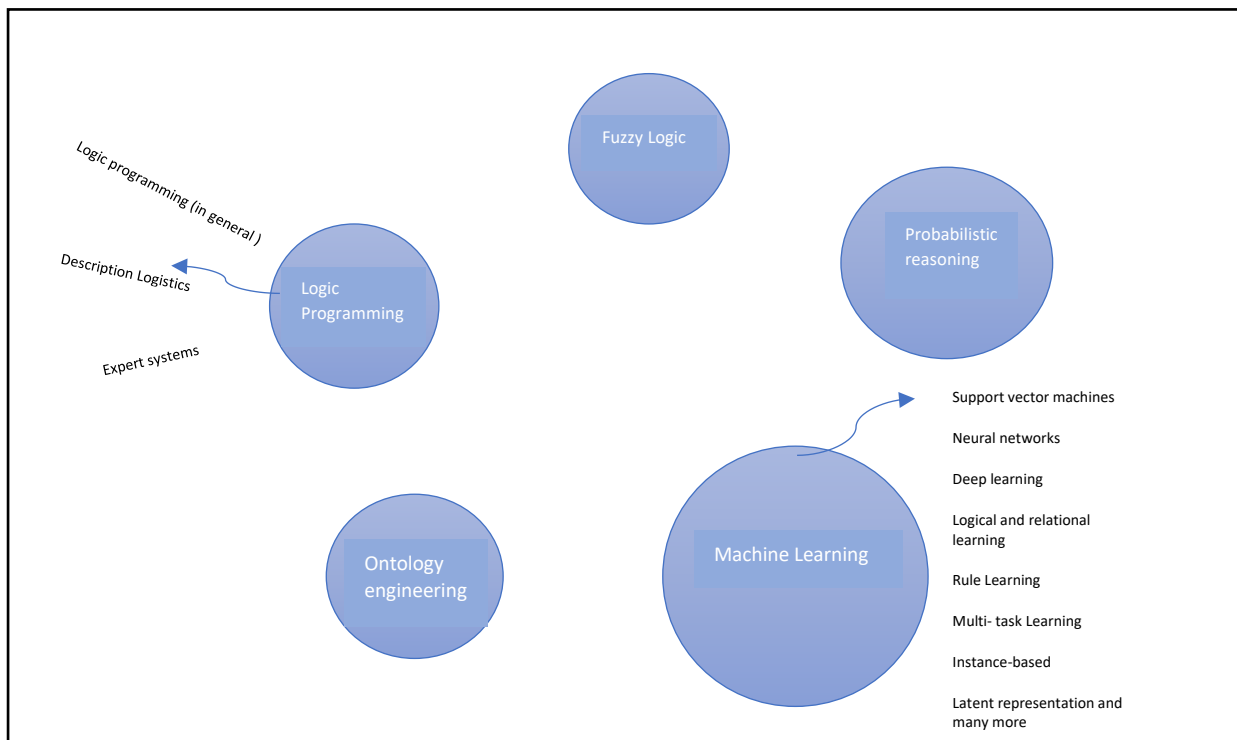
⁴ By. Aristotelis Tsirigos, NYU School of Medicine

⁵ By. Prof. P. Narayana

the Association for Computing Machinery (ACM).⁶ While AI experts may have different perspective of AI technologies but this scheme has an advantage of providing a clear analytical framework for the AI technologies over time. The scheme comprises three main categories:

- AI techniques: Advanced forms of statistical and mathematical models. Such as machine learning. Fuzzy logic and expert systems, allowing the computation of tasks typically performed by humans. (Figure.2)
- AI functional applications: Functions such as speech or computer vision which can be realized using one or more AI technologies.(Figure.3)
- AI application fields: Different fields, areas or disciplines where AI techniques or functional application may find applications such as transportation, agriculture or life and medical science.

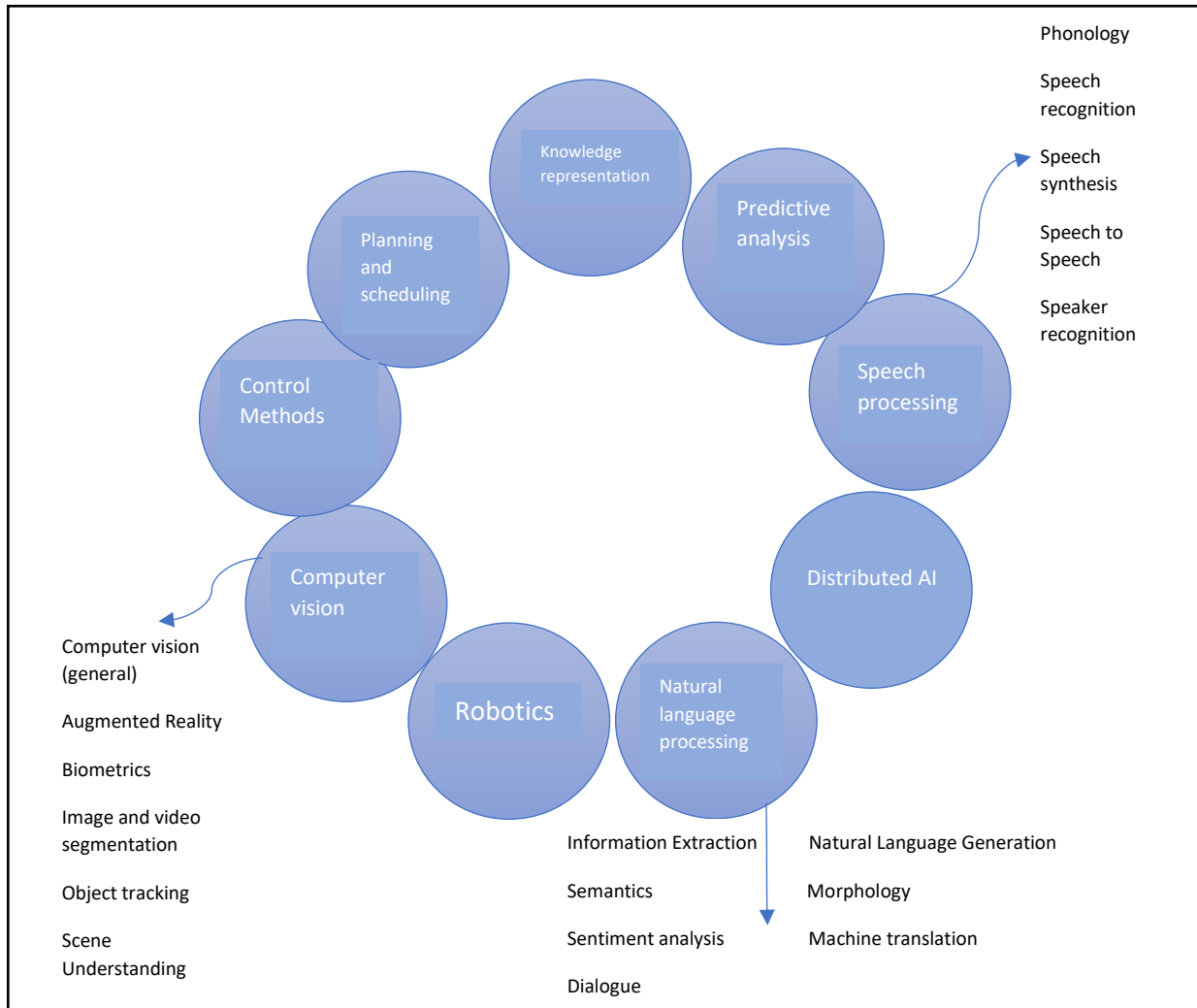
Such as Networks, Business; Personal Device Computing and HCL; Arts and Humanities; Agriculture; Energy Management; Education; Telecommunications; Life and Medical Sciences; Computing in government; Military; Entertainment; Law, Social and behavioural sciences; Document management and publishing; Cartography; Industry and manufacturing; Banking and Finance; Transportation and Security.



(Figure.2)

⁶ 2019, Artificial Intelligence Trend, WIPO Report

(Figure.3)



Key players in AI patenting –

Companies represent 26 of the top 30 patent applicants. Most of these are conglomerates active in consumer electronics, telecommunication and/or software, as well as sectors such as electric power and automobile manufacturing. IBM has the largest portfolio of AI patents with 8,290 patent applications followed by Microsoft with 5,930 patent applications. Of the top 20 companies, 12 are Japanese. The main functional application mentioned by the top companies in their patent application is computer vision, though IBM has a greater focus on natural language processing.⁷ Machine Learning is by the far most represented AI technique in the top applicant’s portfolio. Patent co-ownership is rare though.

AI and IP Protection –

The way different AI technologies will be treated in the assessment of eligible patent subject matter, how the patentability criteria will be interpreted and applied to AI in patent

⁷ By. Boi Faltings, EPFL

prosecution across different jurisdictions, and whether there may be a further refinements or additions in the patent system and its practice to accommodate AI specificities all remain to be seen and merit further discussion by IP specialists. The impact of such development can be measured in particular indicators, namely the number of patent filings in the field of AI, the related geography distribution of patent protection, and the choice of IP rights to protect AI-related inventions.

The Future of AI and Patent-

AI is expected to revolutionize processes across a wide range of fields. It is foreseen that AI will also affect the intellectual property rights, in particular patent rights, and their management. This is likely to be a two-way process: on the one hand, AI developments will affect and be incorporated into IP rights management; on the other hand, IP policies and practices will interact with the strategy of managing innovation in AI.

SELF DRIVEN CARS AND ROAD ACCIDENTS

India is the world's fourth largest auto market where a developing middle-class population and speedy urbanization are steadily pushing up the demand for vehicles. Ipsos said in the statement "India also lacks the basic infrastructure needed to make self-driving cars a reality." Because its streets are full of potholes, narrow and are ruled by law-breaking drivers, which will result in a deadly mix for autonomous vehicles. Global giants like Tesla, Uber, and Google launched self-driving cars to the streets, whereas Indian companies are still at the stage of experiment. In 2018, local carmaker Tata Motors sought permission to test its self-driving vehicle on the roads of Bengaluru. In India autonomous mobility will probably mean robotic tractors rather than robotic cars in order to take farm mechanization to a whole-new level. Escorts is developing level-2 autonomous technology, giving tractors the ability to autosteer and use geo-fencing through GPS (global positioning system). Competitor Mahindra & Mahindra too showcased a semi-autonomous tractor and revealed plans for a fully-autonomous one in the near future.

LIABILITY CLAUSE

Nobody in the world wants to get involved in the accidents but if you driving a vehicle, you will get involved in an accident, no matter how small it is. But what happen in case of a autonomous vehicle? Who will be held liable in case of a accident as there is no one driving the car? Currently in India there is no such legislation which deals with the autonomous vehicles.

Tort liability- there are three basic theories of tort liability: traditional negligence, no-fault liability and strict liability. With the onset of fully autonomous cars, it is possible that the need for specialized automobile insurance disappears. It would provide compensation to victims relatively quickly and the compensation would not depend upon the party at fault. In such system individual drivers would be well protected and would encourage the use of autonomous cars for its safety and cost related benefits.

Criminal liability- a thief, kidnapper, or murderer, if controls a vehicle will be terrifying. Imagine if the hacker merely wants to cause trouble by increasing the speed beyond the speed limit. If the vehicle can self-diagnose that it has been hacked and issue a safety alert, the driver can take over the driving task upon receiving the signals. In this scenario, there are 2 liable parties: first- the person who hacked the vehicle, who will obviously liable for the criminal liability for his act, and second- the person who is now operating, as he would now be expected to take over the safe operations till the technology is fixed. Moreover, there are several degrees of culpability- the mere act of hacking and carjacking. Law enforcement capabilities is the final piece of criminal liability.

Unlike its global counterparts, the Indian government is apprehensive of job losses due to automation. Government's stand on this issue is a major reason why foreign automotive players do not view India as a favourable market for AVs. one cannot dismiss the benefit of technology. But AVs need better road and transport infrastructure, town planning, network and wireless connectivity in India. Looking at the current scenario, India's transport and highway minister Nitin Gadkari told the Hindustan times: "I am very clear on this. We won't allow any technology that takes away jobs. In a country where you have unemployment, you can't have a technology that ends up taking people's jobs."

ROBOTS AND CRIMES

Don't think of robots as replacements for humans- think that will help make us better at tackling many of the problems we face. In his 1950 book, Robots, Isaac Asimov suggests that in the future robots could be governed by the three laws of robotics:

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

With the evolution of AI technology, it will eventually reach a state of tact that will allow it to bypass human control. With its widespread, the question about harm, risk⁸, fault and punishment will become more important. Hence, a study is conducted to identify the crimes provoked by robots.

Commerce, financial market, and insolvency

Cartel offences, such as price fixing and collusion, insider dealing, such as trading securities based on private business information, and market manipulation falls under this heading.

⁸ Tesla's deadly crash

Harmful or dangerous drugs

AI can be contributory in trafficking, selling, buying, and possessing banned drugs. This grows into a treat as criminals are using unmanned vehicles, which lean on AI planning and autonomous navigation technologies, as equipment for fixing the rates of smuggling.

Offences against the person⁹

Crimes ranging from murder to human trafficking falls under this category. It further includes harassment by spreading evil messages against the person. Indirect harassment includes retweeting or liking negative tweets and skewing polls to give a false impressions.

Sexual offences

Sexual offences like rape, sexual assault, and sexual intercourse or activity with a minor. AI promotes sexual objectification, computer interaction, sexual abuse and violence, etc. it is possible with the use of sexbot which includes (i) a humanoid form (ii) the ability to move (iii) some degree of AI.

Theft and fraud, and forgery and personation

Two phase process that begins with using AI is to collect personal data and second is to use it. Which also indicates the use of machine learning in corporate fraud.

LIABILITY

Before moving further, there are 2 important concepts in criminal law- (i) that liability arises when harm has been or is likely to be caused by any act or omission, and (ii) requirement of mens rea. This constitute a problem to manage autonomous intelligent machines under the law: How do we establish the intention of a robot, and how can we do this within existing criminal law principles?

In 2017, the European parliament received a draft report from the commission of legal affairs about robots. In which the question- Who's in charge? Is answered.

1. If the robots perform a task for which they are programmed, the creator will be at fault, because the robot is acting as a tool.
2. But if robots use AI and machine learning to adapt to its environment, the robot would be at fault.

Hence, again this gives rise to another question which is- How do we punish them if they are guilty?

The report underlines few suggestions such as- (i) they must be registered with the European union. (ii) requirement of insurance plans where the manufacturers must pay insurance for the robots they make. (iii) wages should be given to robots. Which would be used to pay compensation for the crime performed.

⁹ Robot kills man in Germany

This further gives rise to the big conversation in relation to robojails, employment crises¹⁰, and many other.

PRIVACY CHALLENGES IN ARTIFICIAL INTELLIGENCE-

Privacy is a state in which one is not observed or disturbed by other people. We try to protect by keeping something or someone from others hidden. No one would ever want anyone to access their personal information. The old saying that cash is king is now swiftly falling by the wayside. There can be no doubt that data is now the king. But with the advancement of recent technologies our privacy has become a pertinent issue like data mining, artificial intelligence and many other advanced internet based techniques which poses a serious threat to privacy. As 21st century has become the era of artificial intelligence, the meaning and value of privacy has become a subject of large debates. Its increasing power is muddling the clarity and agreement between privacy which is giving birth to data breach and security issues. AI needs massive amounts of data to be as effective as a human being in analysing behaviour. Today's datasets, coming from phones, browsers, IoT, or smart-cities, are high dimensional which means they contain each individual thousands of pieces of information about him and in what way he behaves. Developing solutions allowing artificial algorithms to learn from large-scale, often very sensitive dataset, while preserving people's privacy is one of the main challenges we are facing today. However, one of the oldest and most well accepted tests on machine exhibits true AI is the Turing Test. This 65-year-old test can be passed if a computer is mistaken for a human more than 30% of the time during a series of five-minute keyboard conversations.¹¹

WAYS IN WHICH ARTIFICIAL INTELLIGENCE AFFECTS PRIVACY-

Identification and Tracking

In this personal data is anonymized, so that it can become part of big data. AI is used to watch, find and track individuals across various devices. Also, it is capable of de-anonymizing this data based on reading collected from other devices as well which means that the line between person and non-personal data is revoked and nothing is personal for AI.

Speech and Facial Recognition

Two identification method voice and facial recognition are increasingly used by artificial intelligence and machine learning. As these methods have the potential to compromise anonymity in public space.

Prediction

Artificial intelligence can use machine learning to gather all the sensitive information even from a non-sensitive information. By gathering such information artificial intelligence is capable of predicting a person's health, political views, ethnical identity from that collected data such as location data, activity's logs and many similar standards.

¹⁰ KP-BOT, Country's first human cop

¹¹ B. Nair, Elaine Rich, Kevin Knight , Third Edition , Artificial Intelligence

Data Manipulation

A machine learning algorithm may mine a user's personal apps to supply human resources department with information that the individual may not be comfortable with the department knowing. From smart home applications to computer software all have certain features that makes them vulnerable to data manipulation. As we rely on them more, the potential for data manipulation keeps on increasing.

PROTECTING PRIVACY

While privacy is a hard concept to define and safeguard, especially today, “there are some basic principles that can help with protecting privacy”, says Debatin¹². “GDPR has in fact included many of them. It includes five components: AI must be transparent; An AI must have a deeply rooted right to information it is collecting; Consumer must be able to opt out of the system; The data collected and the purpose of the AI must be limited by design; Data must be deleted upon consumer request. These steps make it possible to protect us from AI-based discrimination, lack of consent and data abuse”. In US , a federal bill called the Future of Artificial Intelligence Act sought to take the first steps at protecting the privacy of individuals against potential abuses from AI.¹³

Digital technologies such as AI have made substantial contributions to many areas of our life. Unfortunately, these technologies can also be used against social actors, from individuals to corporations, to government agencies.

REGULATION OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence research is still far from its pinnacle but its glimpses are already been seen of what a future dominated by AI can look like. Hence, it become important to exercise some caution and introduce worldwide regulations for the development and use of AI technology. The constant research in these fields of technologies giving rise to increasingly more powerful applications and also the accessibility to these applications which makes it easier for more and more people as well as organization to use and develop these technologies. The usage of certain technologies should be regulated and monitored to prevent the misuse and abuse of the technology towards harmful ends.

¹² By Prof. Debatin

¹³ Introduce on 12.12.2017 including , U.S. competitiveness, including the promotion of investment into the development of artificial intelligence; the U.S. workforce, including the potential for using artificial intelligence for rapid retraining of workers, due to the possible effect of technological displacement; education, including science, technology, engineering, and mathematics education to prepare workers as the needs of employers change ;open sharing of data and research on artificial intelligence; and international cooperation and competitiveness, including the competitive international landscape for artificial intelligence-related industries.

WHY ARTIFICIAL INTELLIGENCE SHOULD BE REGULATED

AI can be a double-edged sword

Today it is common to come across machines that can perform specific logical and computational tasks better than humans. They can perform feats such as understanding what we speak or write using natural language processing, playing games involving logic and intuition, and detecting illnesses using deep neural networks. However, if such application is made available to the general public worldwide can undoubtedly make a positive impact in the world. They can help businesses become more efficient by automating routine tasks and preserve human health and safety. AI is a double-edged sword, it has dark side too. If these highly advanced and complex AI systems are left uncontrolled and unsupervised, they stand the risk of performing task in unethical ways and also deviating from their desirable behaviour. We are currently at more risk of AI doing the wrong things.

AI ethic is not enough

AI has been used more for doing wrong things rather than finding a way for preventing wrong things. It becomes important for the developers to exercise more caution and care while creating these systems. And the AI community is trying to achieve by following a generally accepted set of ethics and guidelines. These ethical use of AI is being inspired by the collective activism of individuals in the tech community. While such movements helps in mitigating AI induced risk and regulating them but it is not seen that every group involved in developing such AI technology will comply with such activism. Thus, it is necessary to institutionalize AI ethics into law, which will make regulating AI and its impact easier for government and international bodies.

AI safety can only be achieved by regulation

Legally regulating AI can ensure their safety and it becomes an inherent part of any future AI development initiative. Regulators must consider a few must tenets as a part of legislation to ensure the safety of AI. These tenets include: the non-weaponization of AI technology and liability of AI owners, developers or manufacturers for the action of their AI system. Regulation through Legislation should be set up by consulting experts only in the field of artificial intelligence, ethics, moral science, law and justice. When they are upheld and enforced strictly, a challenge to strike a balance between allowing enough freedom to developers to ensure the continued growth of AI research and regulation that can prove to be the enemy of progress.

AI is a distinct category

AI is a sufficiently distinct and homogeneous category. AI is a general- purpose technology with a wide range of applications. If the proposed ethical approach is sound, it should be arguably apply more broadly to pattern recognition, prediction, and decisions taken by human beings. Question arises regarding who decides what, on the basis of what information and within what institutional setting regarding the development and application of technology.

GUIDELINES FOR REGULATING ARTIFICIAL INTELLIGENCE

Regulation against AI-enabled weaponry and cyberweapons- Musk wrote a letter to United Nations said, “ Once developed,(autonomous weapons) will permit armed conflict to be fought at a scale greater than ever, and at timescales faster than humans can comprehend. These can be weapons of terror, weapons that despots and terrorist use against innocent populations, and weapons hacked to behave in undesirable ways. So, we should not create AI-enabled killing machines.”

AI is subject to the full gamut of laws that apply to its human operator- We must ensure that our AI does not hurt anyone, and if it does we must bear its consequences.

AI shall disclose that it is not a human.

AI shall not retain or disclose confidential information without explicit prior approval from the source- This is a private necessity and it will protect us from others misusing the data collected and gathered.

AI must not be bias- It should not increase any bias that already exists in our systems.

OUTLINING REGULATIONS

India will be following the lead of countries such as Canada, Singapore, France, China and the UK, to formulate and eventually implement policies and regulations that control the use of AI. In the year 2018-2019 budget, the government of Australia announced a four-year plan and set aside AU\$29.9 million to support the AI in Australia.¹⁴ At the same time, they will create a Technology Roadmap, a Standards Framework, and a national AI Ethics Framework to support the responsible development of AI. In July 2017, China had unveiled ‘A Next Generation Artificial Intelligence Development Plan’ ,which sets a roadmap for as far as the year2020 with regards to development of AI in China and also the regulations and ethics to promote the development of AI.¹⁵ In April 2018, the European Union outlined then Communication on Artificial Intelligence document which among other issues, outlines the need to have an ethical and legal framework is in place- and will prepare the draft guidelines which member countries would most likely adopt as is, or with certain localized changes.

CONCLUSION AND SUGGESTION

Although the nature of AI does not allow for the forecasting of what next big thing will be but a number of trends have been identified which could provide an indication of the direction in which the field is heading. It is clear that we are going through a renaissance of AI and this is also reflected in the increasing number of scientific publications and patent applications. AI technologies over the period clearly indicate that this trend can be expected to continues. The analysis shows that most patent applications have a commercial application

¹⁴ www.budget.gov.au/2018-19

¹⁵ AI Development Report, China , 2018

focus, as they refer to an AI functional application or are combined with an AI application field. The fields with the most patent applications are the ones which have already attracted a lot of media attention and have been linked to AI such as transportation, including self-driving car, drones, airplanes, or life and medical sciences. Frank Chen embraces the new opportunities that AI promises to bring. He looks forward to augmenting his own intelligence and compensating for his biases. Humans are irrational while AI can help make us become better decision-makers. We must foresee the AI has the potential's to allow us to focus on the things AI is not able to do and emphasize those parts of humanity that are hard to automate, such as empathy. Such a focus on empathy will in its true have an impact of society predicting that systems will shift to people with such skills, in turn having a long-term impact.