



Artificial intelligence - a technology ahead

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Abstract

Artificial Intelligence is the modern engineering science to make machines intelligent as humans. Artificial Intelligence (AI) has progressed tremendously over the past decade with giant companies like Google, Microsoft, Facebook, Tesla, etc. investing billions of dollars in the field of AI research and development.

The four primary goal of an Artificially Intelligent device is to recognize human speech, to learn on its own, to plan things on its own and to solve problems in a controlled way. The subject of intelligence in a machine is controversial but has a vast scope. The topics which contribute the most in the field of Artificial Intelligence are Computer Science, psychology, neuron-science, biology, mathematics, sociology and philosophy.

There are plenty of applications of Artificial Intelligence. Artificial Intelligence was created out of curiosity by humans while they were working on machines it leads them to a thought that can a machine be as intelligent as people and thus the concept of Machine's intelligence was born out of nowhere .

The industry is evolving every day, for now, the technology is being used in the fields like Gaming, Natural Language processing, Machine vision technology, Human voice recognition, Cyber expert systems, Robotic technology and Handwritten text recognition.

Since the invention of computers or machines, their capability to perform various tasks went on growing exponentially. Humans have developed the power of computer systems in terms of their diverse working domains, their increasing speed, and reducing size with respect to time.

A branch of Computer Science named *Artificial Intelligence* pursues creating the computers or machines as intelligent as human beings.

The modern definition of artificial intelligence (or AI) is "the study and design of intelligent Agents" where an intelligent agent is a system that perceives its environment and takes actions which maximizes its chances of success. John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines."

Other names for the field have been proposed, such as computational intelligence, synth synthetic intelligence or computational rationality.

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INTRODUCTION-1

Sir John McCarthy is known as the Father of Artificial Processing Program (LISP) in the year 1956. There are Intelligence who led the foundation of the definition of many other definitions of AI like the definition by Davis Artificial Intelligence as an Artificial Intelligent machine who said that there are certain tasks which we are can possess human like capabilities to solve problems doing in our unconscious mind like decoding a verbal generically rather than solving it within a boundary. He language, translating into data and speaking but these did the first demonstration of an AI algorithm at tasks are very challenging to program on a computer.



Hence, the AI according to him is to perform these tasks.

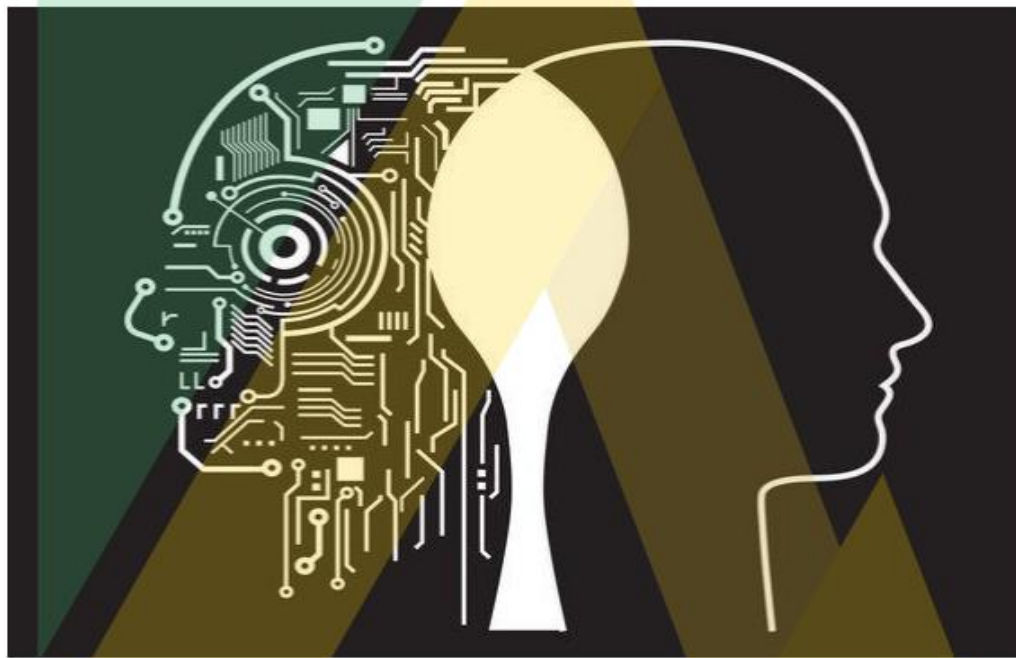


Figure 1 The Evolution of Artificial Intelligence

Figure1.1

AI is carried out by studying how human brain works can outperform Humans in some certain tasks such as while learning, reasoning and problem solving and then playing Chess or solving Mathematical equations. There using the result of this data as a basis for innovating and are plenty of applications available on our Smartphones developing smart applications, software, machines, and or computers which can solve equations in a blink of an robots. Some leading researcher has advised that it is eye.

not useful to study the human brain and its function to **Philosophy of AI-1.1**

understand machine intelligence because the While exploiting the power of the computer systems, complexity of the human brain is vast and to imitate the curiosity of human, lead him to wonder, "Can a those things in a computer will never be possible. On machine think and behave like humans do?"

the other hand, some researchers have glorified their Thus, the development of AI started with the intention way to challenge human brain against a machine. The of creating similar intelligence in machines that we find most common example is computer chess gaming. The and regard high in humans.

favorite chess game was developed just after the introduction to modern personal computers and years **Goals of AI-1.2**

after years the developer has worked on it to improve **To Create Expert Systems** – The systems which exhibit the way it can challenge a professional chess player. intelligent behavior, learn, demonstrate, explain, and advice its users.

Today's Artificial Intelligence is known as a Narrow **To Implement Human Intelligence in Machines** – Artificial Intelligence or sometimes it is called as Weak Creating systems that understand, think1, learn, and Artificial Intelligence as it can only perform some behave like humans.

certain tasks which is programmed in its band of function such as Voice Recognition, driving an **What Contributes to AI?-1.3**

automated car which doesn't need a driver or human Artificial intelligence is a science and technology based intelligence. However the important thing is machines on disciplines such as Computer Science, Biology,

Psychology, Linguistics, Mathematics, and Engineering. Out of the following areas, one or multiple areas can contribute to build an intelligent system. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

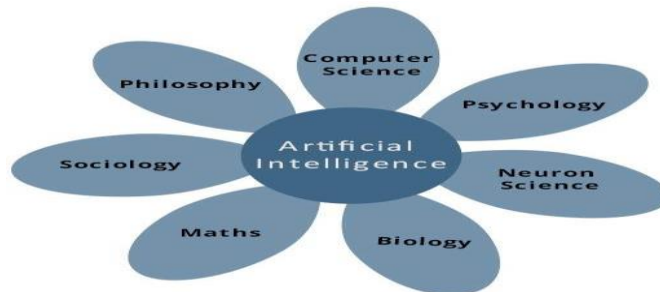


Figure1.2

Programming Without and With AI-1.4

Table-1.1(programming with or without ai)

Programming Without AI	Programming With AI
Computer program without AI can answer the specific questions it is meant to solve.	Computer program AI can answer generic questions it want to solve.
Modification in the program leads to change in its structure.	Programs can absorb modifications by gluing highly independent pieces of program together. Hence you can modify a minute piece of program without affecting its structure.
Modification is not quick and easy. It may lead to affecting the program adversely.	and Easy program modification.

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Examples:-1.5

- IBM’s cognitive computing services for Watson, available through their Application Programming Interfaces, offers up to 20 different technologies such as speech-to-text and text-to-speech, concepts identification and linking, visual recognition and many others...
- Google’s TensorFlow software library for machine intelligence with neural networks – was put into open source
- Facebook recently open sourced its Big Sur hardware design for running large deep learning neural networks on



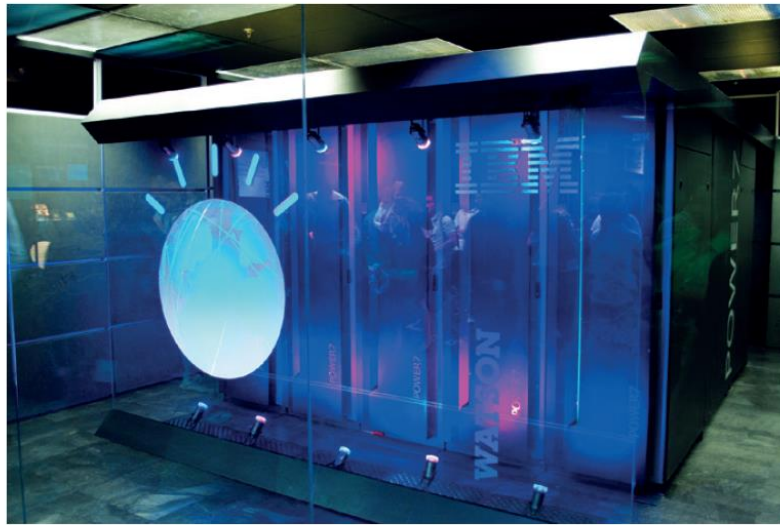


Figure 3: IBM Watson computer - © Clockready (CC BY-SA 3.0, via Wikimedia Commons)

Figure1.3

All these positive achievements have been balanced by within a generation will be solved ". The first artificial some concerns about the dangers of AI expressed by intelligence applications were introduced during this highly recognised scientists, which is the subject of the period. These applications are based on logic theorems and chess game. The programs developed during this period were distinguished from the geometric forms used in the intelligence tests; which has led to the idea next section.

ARTIFICIAL INTELLIGENCE HISTORY-2

The emergence of artificial intelligence officially in history dates back to 1956. In 1956, a conference artificial intelligence session at Dartmouth College was introduced for the first time. Marvin Minsky stated in his book "Stormed Search for Artificial Intelligence " that "the problem of artificial intelligence modeling

used in the intelligence tests; which has led to the idea that intelligent computers can be created.

• **5th Century BC** – Aristotle invented the syllogistic logic, it was the first formal deductive reasoning

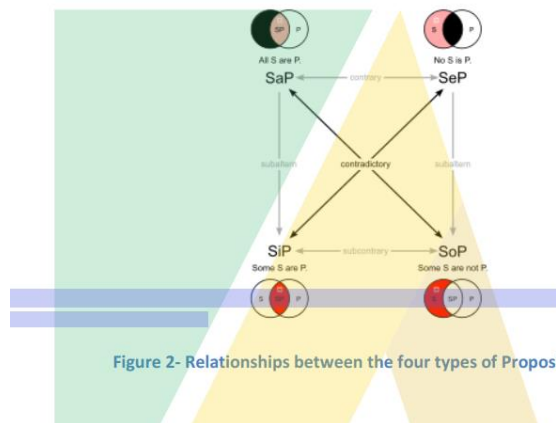


Figure 2- Relationships between the four types of Propositions in

Figure1.4



- **16TH Century AD** – Rabbi Loewe had been marked as inventing the Golem which was known as the artificial man made out of sand.



Figure 3- A Prague reproduction of the Golem.

Figure 1.5

- **17th Century** – Pascal created the first mechanical calculator which was able to perform simple calculations.

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Figure 4- A Pascaline signed by Pascal in 1652

Figure 1.6

- **18th Century** – Wolfgang von Kempelen had invented the fake chess game machine, which was known as the Turk.



Figure 5- A reconstruction of The Turk

Figure1.7

- **19th Century** – Charles Babbage and Lady Lovelace had developed clean and simple Programmable mechanical computers.

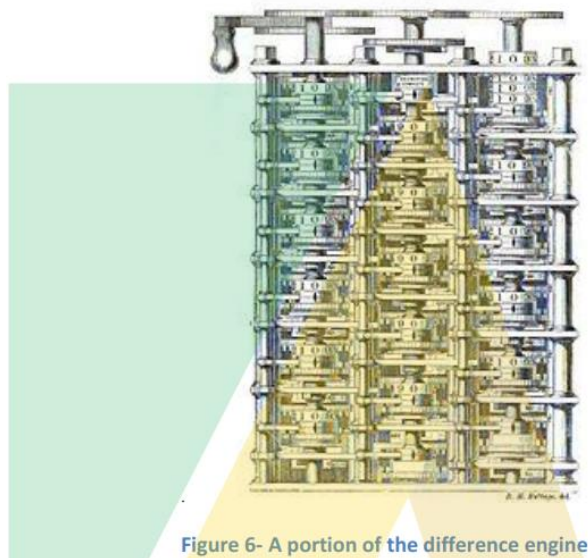


Figure 6- A portion of the difference engine

Figure1.8

20th Century – Karel Kapek gifted the world with the minimized on the basis that each machine will be able term “Robotic” as Rossum’s Universal Robots. At the to perform multiple tasks. same time Turing writes the Computing Machinery and Intelligence and proposed a tesycalled Turing Test.

Types of Artificial Intelligence-3

There are 4 Fundamental types of Artificial Intelligence machines cannot store memories nor they could store a as of now which differentiate one sort of machine to previous log and hence it won’t affect the decision other. The primary goal in modern technology is to making ability of the Reactive Machines. Deep Blue is a establish a system where the differentiation can be

Reactive Machines -3.1

Reactive Machines are the most root type of Artificial Intelligence systems which are reactive in nature. These machines cannot store memories nor they could store a as of now which differentiate one sort of machine to previous log and hence it won’t affect the decision other. The primary goal in modern technology is to making ability of the Reactive Machines. Deep Blue is a



gaming computer developed by IBM in the late 1995 is the perfect example of this type of Machines. developers and then a year later in May 1997 they again introduced Deep Blue 2.0 which defeated Kasparov in a Deep blue had a moment in February 1996 against the 6 straight games. Kasparov didn't accept his defeat and Famous world champion of Chess known as Garry accused IBM for malfunctioning and cheating. That was Kasparov. It defeated him in the first game in the set of the first time in the known history a machine had 6 games. However the algorithm wasn't enough as later defeated a skilled human. Kasparov had won consecutive 3 games and drew the rest 2 games which raised a challenge for the IBM



Figure 7- IBM Deep Blue 2.0

Figure2.1

Deep Blue wasn't storing any data on its memory. After every move it used to scan the whole board and plan the next move accordingly. This ensures that machines are trustworthy as they would never get bored, uninterested or unhappy.

Limited Memory -3.2

The second type of Artificial Intelligence contains static data in the memory such as marking which lane to devices that can store a limited memory. The best drive and where to stop in the traffic.

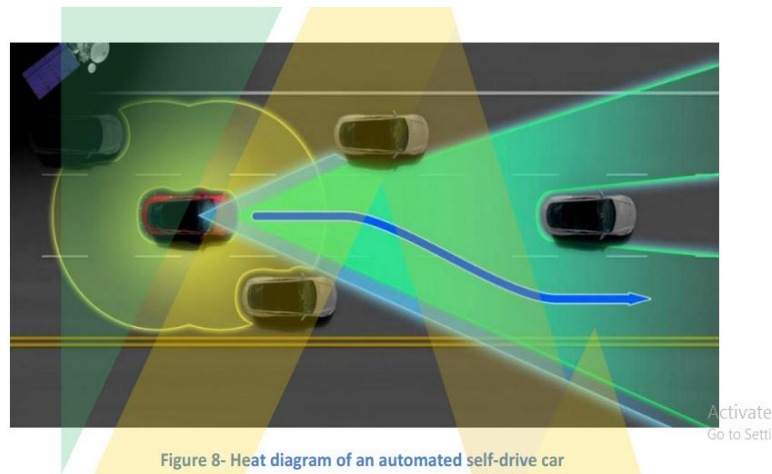


Figure 2.2

Further up on the AI evolutionary steps: this type that by 2040 we are expecting these machines to be a considers the history information and sums them to its reality.

preprogrammed schema of the world. It has just par memory and data to make proper decisions and the executable actions.

Drive.ai is one of the earliest initiatives to make our life. To make this possible we will need to make roads safer and to completely demolish death cause of machine road accidents. Grand companies like Tesla, and Mitsubishi has invested millions of dollars in the Research and Development of Self-Driving intelligent cars. The company hasreleased many press releases regarding how much they have improved over the years. Such efforts has ensured that the advanced strong AI technology will soon be knocking our doors and the limited memory type Artificial Intelligence will work much faster than before with some advanced improvement.

Chatbots are one of the earliest technologies that worked on the theme of Artificial Intelligence in the early 1980s. Companies like Microsoft, Apple IBM and manylaunched GUI(Graphical User Interface) as a means to create technology as user oriented .

Theory of mind -3.3
The classification at this point divides the Artificial Machines we have for now and those potentially strong machines that we would built in the coming years. These machines would be so powerful that it would understand the human nature and behavior as in expressions, feelings, motives, emotions, expectations and intentions. These machines are of future technology and are yet to be built. But it is estimated

The theory of mind concept was coined keeping in mind the human evolution. The way humans interact with the society, how we form laws, how we form a systematic machine understand certain things like emotions, feelings, expressions and behavior. The theory of mind Artificial Intelligence is the most advanced class of model which requires understanding of environment and how actions can alter feelings and behaviors. The idea of theory of mind is to propagate the information of mental states to the machine. Mental states are the thoughts that run through our brain 24/7 “belief that tomorrow is my submission date”, my hopes that “my cricket team will win the championship”. Machines implements simple functions so by mental state it is assumed that the Artificial Intelligence will make machines so powerful and invincible that it could literally have a sense of brain. It could have expectations, beliefs, emotions and feelings. However, the question arises that if machinewould actually behave like humans in a sense of brain intelligence will there be conflicts? Can this lead to negative impacts. Also, is it possible to make such machines which has enormous intelligence like us and can also sense like we do. The theory of mind is an assumption and for now it seems difficult but not impossible. Researchers, Scientists and Engineers are trying their best to innovate somewhat such technologies step by step.

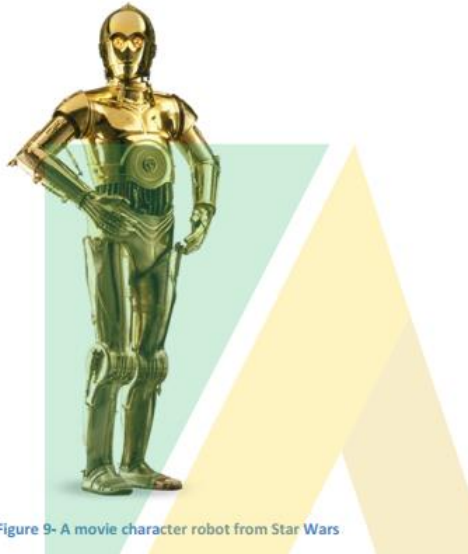


Figure 9- A movie character robot from Star Wars

There are no real world examples of Artificial Intelligence on Theory of Mind. But the robots C-3PO and R2-D2 from the legendary movie Star Wars Universe were based on Theory of mind. Sony was another robot from the movie I, Robot.

Self Awareness -3.4

The final classification is on the basis of machines' representation about themselves. Self Awareness is an extension of theory of mind. The machines are aware of their internal states and they can assume the feelings and beliefs of others. Such machines can make abstractions and inferences as well. These machines are the super intelligent having sentiments and consciousness. They are the future technology but as of now they are far from reality.

The current scenario is we need to focus our innovation towards the other three classifications and things like memory management, data preparation, machine learning and reasoning etc. These are the important aspects to empower Artificial Intelligence and to make theories into practical models.

common applications of ai-4 game playing

You can buy machines that can play master level chess for a few hundred dollars. There is some AI in them, but they play well against people mainly through brute force computation--looking at hundreds of thousands of positions. To beat a world champion by brute force and known reliable heuristics requires being able to look at 200 million positions per second.

speech recognition

In the 1990s, computer speech recognition reached a practical level for limited purposes. Thus United Airlines has replaced its keyboard tree for flight information by a system using speech recognition of flight numbers and city names. It is quite convenient. On the the other hand, while it is possible to instruct some computers using speech, most users have gone back to the keyboard and the mouse as still more convenient.

understanding natural language

Just getting a sequence of words into a computer is not enough. Parsing sentences is not enough either. The computer has to be provided with an understanding of the domain the text is about, and this is presently possible only for very limited domains.

computer vision

The world is composed of three-dimensional objects, but the inputs to the human eye and computers' TV cameras are two dimensional. Some useful programs can work solely in two dimensions, but full computer vision requires partial three-dimensional information that is not just a set of two-dimensional views. At present there are only limited ways of representing three-dimensional information directly, and they are not as good as what humans evidently use.

expert systems

A "knowledge engineer" interviews experts in a certain knowledge engineers forced what the experts told them domain and tries to embody their knowledge in a into a predetermined framework. In the present state computer program for carrying out some task. How well of AI, this has to be true. The usefulness of current this works depends on whether the intellectual expert systems depends on their users having common mechanisms required for the task are within the sense.

present state of AI. When this turned out not to be so,

there were many disappointing results. One of the first **heuristic classification**

expert systems was MYCIN in 1974, which diagnosed One of the most feasible kinds of expert system given bacterial infections of the blood and suggested the present knowledge of AI is to put some information treatments. It did better than medical students or in one of a fixed set of categories using several sources practicing doctors, provided its limitations were of information. An example is advising whether to observed. Namely, its ontology included bacteria, accept a proposed credit card purchase. Information is symptoms, and treatments and did not include patients, available about the owner of the credit card, his record doctors, hospitals, death, recovery, and events of payment and also about the item he is buying and occurring in time. Its interactions depended on a single about the establishment from which he is buying it (e.g., patient being considered. Since the experts consulted about whether there have been previous credit card by the knowledge engineers knew about patients, frauds at this establishment.

doctors, death, recovery, etc., it is clear that the

Table-1.2(milestone of ai)

	tone / Innovation
	Čapek play named "Rossum's Universal Robots" (RUR) opens in London, first use of the word "robot" in English.
	Connections for neural networks laid.
	Asimov, a Columbia University alumni, coined the term <i>Robotics</i> .
	Turing introduced Turing Test for evaluation of intelligence and published <i>Computing Machinery and Intelligence</i> . Claude Shannon published <i>Detailed Analysis of Chess Playing</i> as a paper.
	McCarthy coined the term <i>Artificial Intelligence</i> . Demonstration of the first running AI program at Carnegie Mellon University.
	McCarthy invents LISP programming language for AI.
	Allen Newell and Herbert A. Simon's dissertation at MIT showed that computers can understand natural language well enough to solve algebra word problems correctly.
	John Weizenbaum at MIT built <i>ELIZA</i> , an interactive program that carries on a dialogue in English.
	Marvin Minsky and Seymour Papert at Stanford Research Institute Developed <i>Shakey</i> , a robot, equipped with locomotion, perception, and problem solving.



	assembly Robotics group at Edinburgh University built <i>Freddy</i> , the Famous Scottish Robot, able of using vision to locate and assemble models.
	first computer-controlled autonomous vehicle, Stanford Cart, was built.
	David Cohen created and demonstrated the drawing program, <i>Aaron</i> .
	Significant advances in all areas of AI – Significant demonstrations in machine learning Expert based reasoning Agent planning Scheduling Mining, Web Crawler Natural language understanding and translation Robotics, Virtual Reality etc.
	Deep Blue Chess Program beats the then world chess champion, Garry Kasparov.
	Interactive robot pets become commercially available. MIT displays <i>Kismet</i> , a robot with a face that expresses emotions. The robot <i>Nomad</i> explores remote regions of Antarctica and locates penguins.

Methodology adopted for the implementation of ai-5

Speech and Voice Recognition-5.1

These both terms are common in robotics, expert systems and natural language processing. Though these terms are used interchangeably, their objectives are different.

Table-1.3(diff between speech and voice recognition)

Speech Recognition	Voice Recognition
Speech recognition aims at understanding and comprehending WHAT was spoken.	Objective of voice recognition is to identify WHO is speaking.
Used in hand-free computing, map, or menu navigation.	Used to identify a person by analysing its tone, pitch, and accent, etc.
Line does not need training for Speech Recognition and is not speaker dependent.	Recognition system needs training as it is person oriented.
Speaker independent Speech Recognition systems are used.	Speaker dependent Speech Recognition systems are used.






It to develop.	Comparatively easy to develop.
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Working of Speech and Voice Recognition Systems-5.2
 The user input spoken at a microphone goes to sound card of the system. The converter turns the analog signal into equivalent digital signal for the speech processing. The database is used to compare the sound patterns to recognize the words. Finally, a reverse feedback is given to the database.

This source-language text becomes input to the Translation Engine, which converts it to the target language text. They are supported with interactive GUI, large database of vocabulary, etc.



Real Life Applications of AI Research Areas-5.3
 There is a large array of applications where AI is serving common people in their day-to-day lives-

Table-1.4(research areas fir ai)

Research Areas	Example
AI Systems Examples – Flight-tracking systems, Clinical systems.	
Natural Language Processing Examples: Google Now feature, speech recognition, Automatic voice transcription.	
AI Networks Examples – Pattern recognition systems such as face recognition, character recognition, handwriting recognition.	

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<p>Robotics Examples – Industrial robots for moving, spraying, painting, precision welding, drilling, cleaning, coating, carving, etc.</p>	
<p>Logic Systems Examples – Consumer electronics, automobiles, etc.</p>	

Turing Test-5.5

The success of an intelligent behavior of a system can be measured with Turing Test.

Two persons and a machine to be evaluated participate in the test. Out of the two persons, one plays the role of the tester. Each of them sits in different rooms. The tester is unaware of who is machine and who is a human. He interrogates the questions by typing and sending them to both intelligences, to which he receives typed responses. This test aims at fooling the tester. If the tester fails to determine machine's response from the human response, then the machine is said to be intelligent.

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Task Classification of AI-5.6



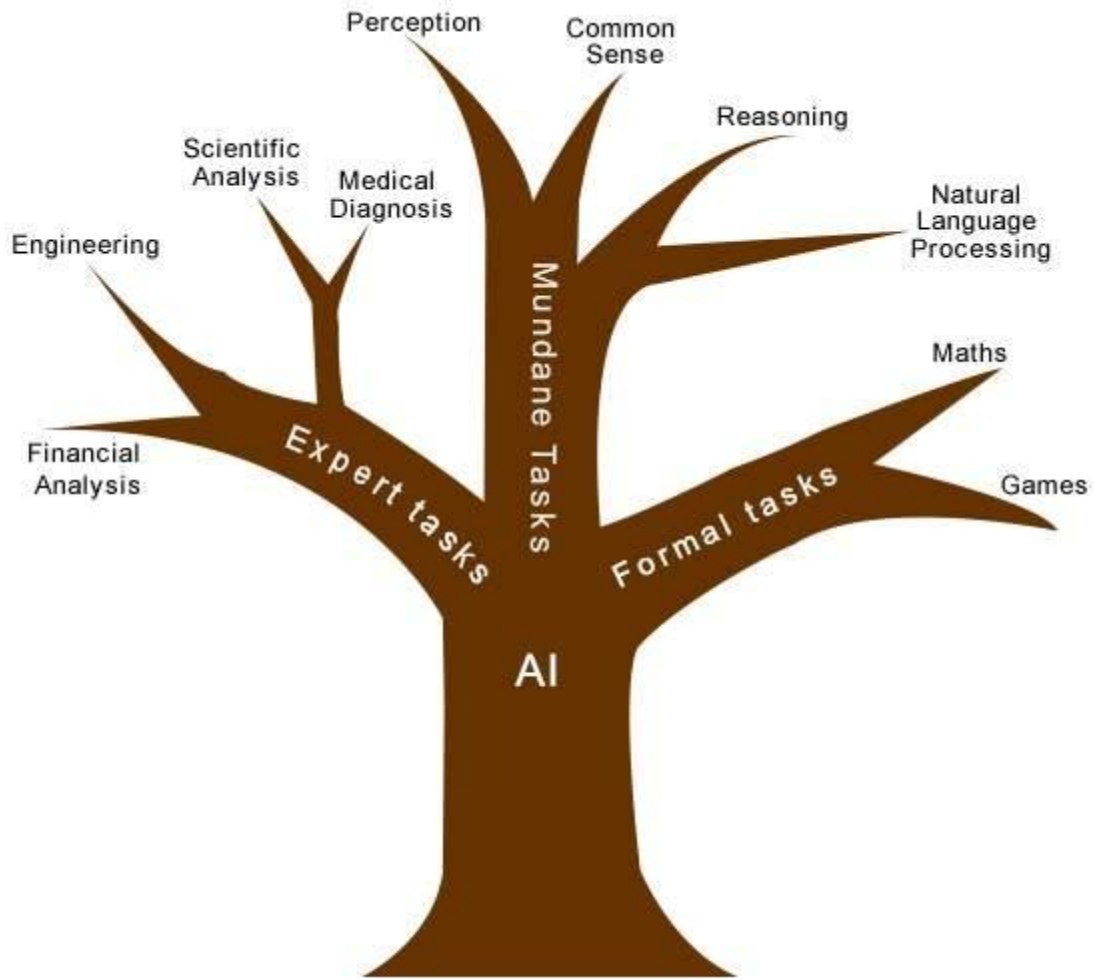


Figure2.6

Task Domains of Artificial Intelligence		
Table(1.5)-(task classification of ai)		
Mundane (Ordinary) Tasks	Formal Tasks	Expert Tasks
Perception • Computer Vision • Speech, Voice	• Mathematics • Geometry • Logic ntegration and Differentiation	• Engineering • Fault Finding • Manufacturing • Monitoring
Natural Language Processing • Understanding • Language Generation • Language Translation	Games • Go • Chess (Deep Blue) • Ccheckers	Scientific Analysis

Common Sense	Verification	Financial Analysis
Reasoning	Theorem Proving	Medical Diagnosis
Planing		Creativity
Robotics • Locomotive	•	

Humans learn **mundane (ordinary) tasks** since their birth. They learn by perception, speaking, using language, and locomotives. They learn Formal Tasks and Expert Tasks later, in that order.

For humans, the mundane tasks are easiest to learn. The same was considered true before trying to implement mundane tasks in machines. Earlier, all work of AI was concentrated in the mundane task domain. Later, it turned out that the machine requires more knowledge, complex knowledge representation, and complicated algorithms for handling mundane tasks. This is the reason **why AI work is more prospering in the Expert Tasks domain** now, as the expert task domain needs expert knowledge without common sense, which can be easier to represent and handle.

Applications of Artificial Intelligence In Use Today-6

#1 -- Siri

Everyone is familiar with Apple's personal assistant, [Siri](#). She's the friendly voice activated computer that we interact with on a daily basis. She helps us find information, gives us directions, add events to our calendars, helps us send messages and so on. Siri is a pseudo-intelligent digital personal assistant. She uses machine-learning technology to get smarter and better able to predict and understand our natural-language questions and requests.

#2 -- Boxever

[Boxever](#), co-founded by CEO, Dave O'Flanagan, is a company that leans heavily on machine learning to improve the customer's experience in the travel industry and deliver 'micro-moments,' or experiences that delight the customers along the way. It's through

machine learning and the usage of A.I. that the company has dominated the playing field, helping its customers to find new ways to engage their clients in their travel journeys.

#3 -- Amazon.com

[Amazon's](#) transactional A.I. is something that's been in existence for quite some time, allowing it to [make astronomical amounts of money online](#). With its algorithms refined more and more with each passing year, the company has gotten acutely smart at predicting just what we're interested in purchasing based on our online behavior. While Amazon plans to ship products to us before we even know we need them, it hasn't quite gotten there yet. But it's most certainly on its horizons.

#4-- Pandora

[Pandora's](#) A.I. is quite possibly one of the most revolutionary techs that exists out there today. They call it their musical DNA. Based on 400 musical characteristics, each song is first manually analyzed by a team of professional musicians based on this criteria, and the system has an incredible track record for recommending songs that would otherwise go unnoticed but that people inherently love.

Innovative applications:-6.1

Self-Driving Car

Tesla was one of the first automotive brands to launch a self-driving vehicle, and Audi, Cadillac, and Volvo are already developing their own models. But that's not all. [Uber already made the first 50,000-beer delivery with a self-driving truck](#) .





Figure2.7

The Fortunisteller That Will Know It Before You

Do you want some examples of detected issues that we humans might have overlooked?

Well here are 3!

AI can assertively predict if someone is gay or straight based on photographs of their face.

A [Stanford University](#) study discovered that an algorithm that can correctly identify which men are gay and which are not with 81% accuracy, and 74% accuracy

for women But that's not all. Facebook is using artificial intelligence bots that can save the lives of people at risk of committing suicide. As an article by [Fast Company](#)

explains, the company announced a pilot project in the United States that used AI to proactively identify Facebook posts that could indicate suicidal tendencies.

Facebook's AI technology identified over 100 cases that required intervention.

How is it possible that these kinds of things can be anticipated or predicted with this level of accuracy?

Even if you're thinking about quitting your current job, AI may know it before Human Resources does. [IBM has a solution](#) that uses predictive analytics to identify personnel retention problems. This program can end common factors that cause its staff to quit, creating a quality score for each employee based on the projected probability that they will leave the company soon.

A Better World

Some people are afraid of AI, asking themselves, "Will we lose our jobs? And then what?" You should also explore the positive things that it can do for us humans.

Like what? Like save the ecosystem and prevent adverse effects that threaten human and animal life.

An extensive article published in *The Guardian* exemplified several ways in which AI can help us to prevent future damage and better understand how to address developmental needs while focusing on sustainability.



Ad
Go!

Figure2.8

ARTIFICIAL INTELLIGENCE AND LIFE IN 2030-6.3

Overall trends and the future of AI research

The resounding success of the data-driven paradigm has displaced the traditional paradigms of AI. Procedures such as theorem proving and logic-based knowledge representation and reasoning are receiving reduced attention, in part because of the ongoing challenge of connecting with real-world groundings. Planning, which was a mainstay of AI research in the seventies and eighties, has also received less attention of late due in part to its strong reliance on modeling assumptions that are hard to satisfy in realistic applications. Model-based approaches—such as physics-based approaches to vision and traditional control and mapping in robotics—have by and large given way to data-driven approaches that close the loop with sensing the results of actions in the task at hand. Bayesian reasoning and graphical models, which were very popular even quite recently, also appear to be going out of favor, having been drowned by the deluge of data and the remarkable success of deep learning.

Over the next fifteen years, the Study Panel expects an increasing focus on developing systems that are human-aware, meaning that they specifically model, and are specifically designed for, the characteristics of the people with whom they are meant to interact. There is a lot of interest in trying to find new, creative ways to develop interactive and scalable ways to teach robots. Also, IoT-type systems— devices and the cloud—are

becoming increasingly popular, as is thinking about social and economic dimensions of AI. In the coming years, new perception/object recognition capabilities and robotic platforms that are human-safe will grow, as will data-driven products and their markets.

The Study Panel also expects a reemergence of some of the traditional forms of AI as practitioners come to realize the inevitable limitations of purely end-to-end deep learning approaches. We encourage young researchers not to reinvent the wheel, but rather to maintain an awareness of the significant progress in many areas of AI during the first fifty years of the field, and in related fields such as control theory, cognitive science, and psychology.

Benefits and Risks of Artificial Intelligence-6.4

Benefits – In the coming years the goal is to innovate with AI safely and progressively to get the most of the advantages of the technology. There are various concerns over the technical terms such as security, control, verification and the law of the state. There are always plenty of loopholes in every technology we encounter in our daily life such as our Smartphones getting hacked, files getting encrypted, webcam and microphone getting hacked. Thus it becomes essential for us to have proper control over the machines. From self-driving cars to personal assistant chat bots one should know every aspect of the AI technology if their life is getting dependent on them.



In the long run, the question is what happens if we reach up to an extent where machines dethrone humans, and strong Artificial Intelligence becomes a reality. I.J Good was a researcher who had an idea about strong AI back in 1965. He raised an important question that what happens if the machine overpowers humans? Such a technology could improve itself in a tragic way that the intelligence would explode leaving human intelligence far behind. But he also stated that such future technology would help people to tackle major issues like poverty, diseases, war and such revolutionary technology will have a significant number of advantages.

It will be the biggest event in mankind's history if Broad AI becomes a reality and we have machines which are super intelligent.

There are other factors as well like if it is even possible to make strong AI a fact but like ten years back the touch-screen Smartphones, online shopping, video calls, 4th generation Internet speed weren't a reality as well, and it used to look far fetched from the reality. Similarly, for Strong Artificial Intelligence, we can give an upper hand to the fact that sooner or later it will come into existence and for now the important thing for researchers is to determine the possible harms a super intelligent machine can affect humans.

Risks – Most of the researchers believe that it is not possible for machines to have emotions, feelings, sense of desire, etc. so there are no risks of machines becoming evil and damaging human lives. While because AI can be dangerous for us, there are two modern theories and possibilities.

1. Automatic weapons are based on Artificial Intelligence which is created intentionally to kill others. If these arms land into some evil hands it can cause major destructions leaving mass casualties. These machines can be designed in a way that turning it off manually would be near to impossible task. These weapons can also be a nuclear weapon which once initiated can eradicate the earth and its livelihood. The risk is not only with the following technology but also with the narrow AI but as the technology grows day by day Artificial Intelligence and autonomy increases and hence we cannot ignore this significant threat.

2. Let's suppose if we program a car to drive from place A to place B automatically so to achieve this goal the machines can adopt a destructive method like going in the wrong way or taking unnecessary shortcuts which can eventually result in road accidents. It can happen if we cannot make machines understand our explicit goal. To differentiate what we want and what we asked from intelligent devices would be a challenging thing and can be boring in a sense as well. All such examples put a lot of questions and concerns in our mind about the Strong AI are competence. A super intelligent AI will be effective to accomplish its end goal however if it is not practical for us it can create severe problems.

Conclusion-7

We are on the verge of creating the most innovating thing in our history. The artificial intelligence is a top notch topic in the field of Science and Technology. Facebook's CEO Mark Zuckerberg has also initiated a lot of projects towards artificial intelligence including a personal assistant chat bot like that of Iron Man movie. Recently there was news that some of the robots were speaking a different language and possibly got malfunctioned, however, when the engineers monitored them they came out of a conclusion that the machines have developed language of their own and were communicating effectively. Later they were shut down.

So there are hundreds of possibilities about Artificial Intelligence and where we will be standing in the coming years keeping in mind that we have just started and there is a long way to go.

Artificial Intelligence can change our lives completely with their super intelligence every work would be easy to perform, and a major chain of technology will follow after we achieve the fundamentals of Strong AI. Artificial Intelligence has its risks and benefits and researchers, scientist and engineers are trying their best to tackle the risks of intelligent devices. A major revolution is undertaking and we are a part of it. It is our duty to contribute towards such innovating technology as well. Artificial Intelligence will be improving each and every day.

From Microsoft's Cortana to Apple's SIRI we have already observed how such technologies can help us to

build. Also when such companies invests billions of dollars in such an advanced technology we can analyze how much powerful it would be for mankind.

1. **Artificial Intelligence in Healthcare:** Companies are applying machine learning to make better and faster diagnoses than humans. One of the best-known technologies is IBM's Watson. It understands natural language and can respond to questions asked of it. The system mines patient data and other available data sources to form a hypothesis, which it then presents with a confidence scoring schema. As a study realized to emulate human intelligence into computer technology that could assist both, the doctor and the patients in the following ways:
By providing a laboratory forth examination, representation and cataloging medical information.

By devising novel tool to support decision making and research.

By integrating activities in medical, software and cognitive sciences

By offering a content rich discipline for the future scientific medical communities.

2. **Artificial Intelligence in business:** Robotic process automation is being applied to highly repetitive tasks normally performed by humans. Machine learning algorithms are being integrated into analytics and CRM (Customer relationship management) platforms to uncover information on how to better serve customers. Chatbots have already been incorporated into websites and e companies to provide immediate service to Automation of job positions has also become a talking point among academics and IT consultancies.

3. **AI in education:** It automates grading, giving educators more time. It can also assess students and adapt to their needs, helping them work at their own pace.

4. **AI in Autonomous vehicles:** Just like humans, self-driving cars need to have sensors to understand the world around them and a brain to collect, processes and choose specific actions based on information gathered.

Autonomous vehicles are with advanced tool to gather information, including long range radar, cameras, and LIDAR. Each of the technologies are used in different capacities and each collects different information. This information is useless, unless it is processed and some form of information is taken based on the gathered information. This is where artificial intelligence comes into play and can be compared to human brain. AI has several applications for these vehicles and among them the more immediate ones are as follows:

Directing the car to gas station or recharge station when it is running low on fuel. Adjust the trips directions based on known traffic conditions to and the quickest route. Incorporate speech recognition for advanced communication with passengers. Natural language interfaces and virtual assistance technologies.

5. **AI for robotics** will allow us to address the challenges in taking care of an aging population and allow much longer independence. It will drastically reduce, may be even bring down traffic accidents and deaths, as well as enable disaster response for dangerous situations for example the nuclear melt down at the Fukushima power plant.

6. **Cyborg Technology:** One of the main limitations of being human is simply our own bodies and brains. Researcher Shimon Whiteson thinks that in the future, we will be able to augment ourselves with computers and enhance many of our own natural abilities. Though many of these possible cyborg enhancements would be added for convenience, others may serve a more practical purpose. Yoky Matsuka of Nest believes that AI will become useful for people with amputated limbs, as the brain will be able to communicate with a robotic limb to give the patient more control. This kind of cyborg technology would significantly reduce the limitations that amputees deal with daily.

In the future, predictive analytics and artificial intelligence could play an even more fundamental role in content creation and also in the software fields. Open source information and artificial intelligence collection will provide opportunities for global technological parity and the technology of artificial can become the future in all the domains of health, environment, public safety and security.



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