**Finolex Academy of Management & Technology**

**Ratnagiri - 415639**

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A Project Report On

**“Artificial Intelligence”**

**20 October, 2018**

A Project Report On

**“Artificial Intelligence”**

Prepared For

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**Prepared By**

**Name Roll No**

Kazi Jawwad A Rahim 32

Gokhale Ashish Rajendra 24

Khanolkar Ashutosh Ashish 33

Kiratkar Gunjan Narayan 34

Naik Aniket Anand 42

Kadam Sagar Gangaram 30

Submitted To

**Prof. Suvarna J.  Abhyankar**

**20 October, 2018**

****

**Finolex Academy of Management & Technology**

**Ratnagiri – 415639**

**CERTIFICATE**

This is to certify that following students prepared and presented a Report on – “**Artificial Intelligence**”, as a partial fulfillment of requirement prescribed by **University Of Mumbai** for semester-**V**, Year **2018-19**.

Prepared by

1. **Kazi Jawwad A Rahim 2. Gokhale Ashish Rajendra**

**3. Khanolkar Ashutosh Ashish 4. Kiratkar Gunjan Narayan**

**5. Naik Aniket Anand 6. Kadam Sagar Gangaram**

**Teacher in charge Head of Department Principal**

**(**Prof. Abhyankar) (Dr. V.A. Bharadi) (Dr. Kaushal Prasad)

Date: 20 October, 2018

Place: Ratnagiri

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**Abstract**

Artificial Intelligence (A.I.) is a multidisciplinary field whose goal is to automate activities that presently require human intelligence. Recent successes in A.I. include computerized medical diagnosticians and systems that automatically customize hardware to particular user requirements. The major problem areas addressed in A.I. can be summarized as Perception, Manipulation, Reasoning, Communication, and Learning. Perception is concerned with building models of the physical world from sensory input (visual, audio, etc.). Manipulation is concerned with articulating appendages (e.g., mechanical arms, locomotion devices) in order to effect a desired state in the physical world. Reasoning is concerned with higher level cognitive functions such as planning, drawing inferential conclusions from a world model, diagnosing, designing, etc. Communication treats the problem understanding and conveying information through the use of language. Many important technical concepts have arisen from A.I. that unify these diverse problem areas and that form the foundation of the scientific discipline... The system must automatically organize and utilize this information to solve the specific problems that it encounters. This organization process can be generally characterized as a Search directed toward specific goals. The search is made complex because of the need to determine the relevance of information and because of the frequent occurrence of uncertain and ambiguous data. The necessarily adaptive organization of A.I. systems yields the requirement for A.I. computational Architectures. All knowledge utilized by the system must be represented within such architecture. The acquisition and encoding of real-world knowledge into A.I. architecture comprises the subfield of Knowledge Engineering.

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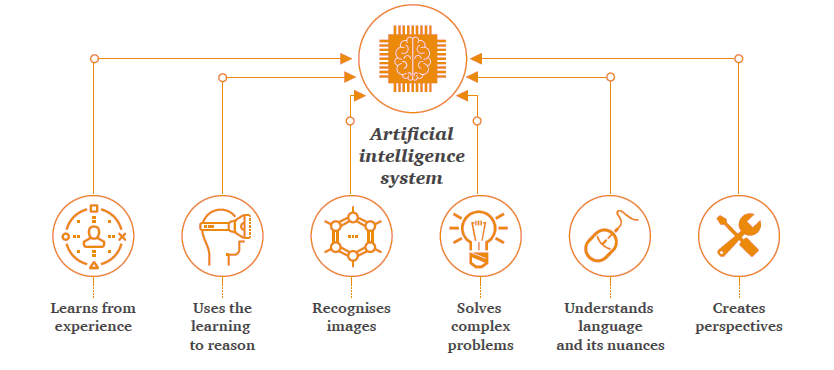
**Chapter 1**

**Introduction**

The roots of Artificial Intelligence can be traced as far back as ancient times. Greek mythology told stories of mechanical devices and artifacts of varying levels of intelligence, whether authentic or perceived. For example, the myth of Hephaestus included the idea of intelligent robots.

**What is Artificial Intelligence?**

Artificial intelligence refers to the ability of a computer or a computer-enabled robotic system to process information and produce outcomes in a manner similar to the thought process of humans in learning, decision making and solving problems. By extension, the goal of AI systems is to develop systems capable of tacking complex problems in ways similar to human logic and reasoning. The great John McCarthy who is a father of AI said that, “Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs**.”**

The field was founded on the claim that a central property of human beings, intelligence—the sapience of Homo sapiens—can be so precisely described that it can be simulated by a machine. This raises philosophical issues about the nature of the mind and limits of scientific hubris, issues which have been addressed by myth, fiction and philosophy since antiquity. Artificial intelligence has been the subject of breathtaking optimism, has suffered stunning setbacks and, today, has become an essential part of the technology industry, providing the heavy lifting for many of the most difficult problems in computer science.

**Fig. Various use of artificial intelligence**

**Chapter 2**

**HISTORY**

In the first half of the twentieth century, science fiction introduced the world to the concept of artificially intelligent robots. While our present-day tools are more sophisticated, people have long wondered what it means to create human intelligence in the machine. Since then, in literature intelligent artefacts appear, while real (and deceitful) mechanical devices in fact display a certain degree of intelligence. Intelligent artefacts appear from that time in literature, while real (and fraudulent) mechanical devices in fact display some degree of intelligence. The Second World War brought together scientists from many fields, including emerging fields of neuroscience and computer science.

Until the 1950s, we had a generation of scientists, mathematicians and philosophers with an artificial intelligence (or AI) concept culturally assimilated in their minds. One of such people was Alan Turing, a young British polymer who studied the mathematical possibility of artificial intelligence. In the UK, mathematician Alan Turing and neurologist Grey Walter was two bright minds that faced the challenges of smart machines. In the 1940s and 1950s, a handful of scientists in various disciplines (mathematics, psychology, engineering, engineering, economics and political sciences) began to talk about the possibility of creating an artificial brain.. Since 1956, as an exciting and imaginative concept, the funding for research into artificial intelligence has been reduced in the 1970s after several reports criticised the lack of progress. Calculators are crucial for the history of artificial intelligence, because the need to create accurate tables with pre-calculated values led to the creation of an analytical engine, designed by Charles Babbage in 1840, which inspired the earliest computers created in the 1930s and 1940s.

The logic theory was a program designed to imitate human problem-solving skills and was financed by Research and Development (RAND) Corporation. The vision system used to measure the distance and direction of objects by means of external receptors, artificial eyes and ears. The first Winter AI ended with the introduction of “Expert Systems”, which have been developed and quickly adopted by competing corporations around the world. Acquired by Stanford University in 1963, it is ranked among the first artificial shoulder robots to be computer-controlled. At the end of the 1980s, a few researchers were in favour of a completely new approach to artificial intelligence based on robotics. Currently, giant technical companies such as Google, Facebook, IBM and Microsoft are studying a wide range of artificial intelligence projects, including virtual assistants.

Google is a pioneer of the new approach: thousands of high-performance computers, supporting parallel neural networks, learning to see patterns in huge amounts of streaming data from multiple Google users. Its creators used countless AI techniques, including neural networks, and for more than three years trained a machine to recognize patterns of questions and answers. The field of machine ethics is concerned with giving machines ethical principles or a procedure for discovering a way of resolving ethical dilemmas that they may encounter, allowing them to function ethically by taking their own ethical decisions. Microsoft’s co-founder Bill Gates joins the group of eminent technical gurus and scientists in discovering his thoughts about potentially dangerous effects and unintended consequences of artificial intelligence for human civilisation.

**Chapter 3**

**CURRENT STATUS OF AI**

**Artificial intelligence (AI)** is probably the most rapidly growing new type of technology, and will for sure create a new era of the modern world as we know it today. Modern AI simulates the constant processes going on in our bodies every second of our lives, the human brain and nervous system. The nervous system takes every little piece of information in, through all of your senses, analyses it, and decides what to keep and what to let go of. You learn from the past, gain experience, to improve your future. This is an ongoing process, and through time you learn to make better decisions; your intuition learns to navigate the world - you automatically improve over time. This the essence of artificial intelligence.

AI gets the same constant input through an inflow of data, which is stored in the neural network. The same principle, just another name. Data gets analysed, and processed. Over time an algorithm is setup, and constantly changed a bit, in order to improve, and make better decisions in the future. Now the difference here is that modern AI systems never sleep, and moreover it gets input from often a large amount of people. This makes it able to improve the algorithm faster, and better since the changes are based on input from all of these users, instead of just one - in the case of the human brain.

It’s still early days for AI, but we do already see some great advances in how it can assist people in various different situations and industries. The health industry does already benefit from some of the early research. Google’s DeepMind assists physicians during surgery operations, and it’s now able to recognize early stages of blindness in people, which could potentially help doctors give the right medication, and in the end avoid that risk. Other examples of advances, but just as significant, are natural language recognition, which makes technology able to understand what you say, automatically subtitle a video for deaf people, or translate an ongoing conversation in real-time between you and another person. We already see examples of these products, and they do actually work quite well. In the future, we could all talk our mother’s tongue, and just have a computer in our ear live translating the conversation.

Furthermore, object detection and face recognition already help people to automatically organize their pictures, make them searchable, so you can find that one picture with your significant other at the beach with a cocktail in your hand. Object detection is also already seen in various industries, for instance a cucumber manufacturer uses the technology to automatically determine a cucumber’s size, and thereby sort them into different categories, label them and it’s ready for the grocery store. Blind people use the technology to get a description of a picture on Facebook, or get the text read out loud for them - thus making smartphones available to a new group of people, and assist them in navigating a device that other people take for granted. This vanishes the need for a human assistant, thus increasing privacy and anonymity. The same technology could potentially be introduced in voting booths during elections.

There are many examples already now. One place where many of us have most likely already experienced some of the advantages of AI, is in the palm of your hand, the personal (mobile) assistants. Google Assistant, Apple’s Siri, Microsoft’s Cortana, Facebook’s M, etc. They are already out there, and ready to assist you in your daily life. Help you with time consuming tasks, unclutter your inbox, provide you with information about the departure of your next train, when you should leave to reach the office in time, or if there is a traffic jam on the way then provide you with an alternative route. For instance, Google Maps uses speed data from various devices to automatically detect traffic jams, where it starts and ends, and how long it will take to get through. Similarly, Facebook uses AI to determine what you should see in your personal news feed, and it’s in the same way in constant movement based on how you interact with your timeline. How long time you look at a specific post, if you tap it, like it, comment or just look at the comments. All of these things happen automatically in the background, a constant exchange between Facebook’s servers and your smartphone. This exchange of data should hopefully improve your experience with Facebook, and other services, to use them more, and in the end benefit from these improvements.

Forecast corporation, use data from various different organizations and projects in a similar way to constantly improve our AI-technology. Whenever a project manager or a team member enter some data into the Forecast system, there’s an inflow of data. This data is anonymized, and analysed to improve the algorithm for everybody’s benefit. The algorithm is used to estimate some of the unknown values that teams are dealing with on a daily basis, time estimates, budget, scheduling and employee utilization, etc. Making you able to make better decisions, which are based on a more solid and justified foundation. This will hopefully lead to better and more profitable projects, in time and on budget.

**3.1: Google Now:**

**Google Now** was a feature of Google Search that offered predictive cards with information and daily updates in the Google app for Android and iOS. Google Now proactively delivered information to users to predict (based on search habits and other factors) information they may need. Google no longer uses the Google Now branding, but the functionality continues in the Google app and its feed. Google first included Google Now in Android 4.1 (“Jelly Bean”), which launched on July 9, 2012, and the Galaxy Nexus smartphone was first to support it. The service became available for iOS on April 29, 2013, without most of its features. In 2014, Google added Now cards to the notification centre in Chrome OS and in the Chrome browser. Later, however they removed the notification centre entirely from Chrome.Popular Science named Google Now the "Innovation of the Year" for 2012. Since 2015, Google gradually phased out reference to "Google Now" in the Google app, largely removing remaining use of "Now" in October 2016, including replacing Now cards with Feed At Google I/O 2016, Google showcased its new intelligent personal assistant Google Assistant, in some ways an evolution of Google Now. Unlike Google Now, however, Assistant can engage in two-way dialogue with the user.

**3.2: Siri:**

Siri supports a wide range of user commands, including performing phone actions, checking basic information, scheduling events and reminders, handling device settings, searching the Internet, navigating areas, finding information on entertainment, and is able to engage with iOS-integrated apps. With the release of iOS 10 in 2016, Apple opened up limited third-party access to Siri, including third-party messaging apps, as well as payments, ride-sharing, and Internet calling apps. With the release of iOS 11, Apple has updated Siri's voices for clearer, human voices, supports follow-up questions and language translation, and additional third-party actions. Siri's original release on iPhone 4S in 2011 received mixed reviews. It received praise for its voice recognition and contextual knowledge of user information, including calendar appointments, but was criticized for requiring stiff user commands and having a lack of flexibility. It was also criticized for lacking information on certain nearby places, and for its inability to understand certain English accents. In 2016 and 2017, a number of media reports have indicated that Siri is lacking in innovation, particularly against new competing voice assistants from other technology companies. The reports concerned Siri's limited set of features, "bad" voice recognition, and undeveloped service integrations as causing trouble for Apple in the field of artificial intelligence and cloud-based services; the basis for the complaints reportedly due to stifled development, as caused by Apple's prioritization of user privacy and executive power struggles within the company.

**3.3: Cortana:**

Cortana can set reminders, recognize natural voice without the requirement for keyboard input, and answer questions using information from the Bing search engine (e.g., current weather and traffic conditions, sports scores, biographies). Searches using Windows 10 will only be made with Microsoft Bing search engine and all links will open with Microsoft Edge, except when a screen reader such as Narrator is being used, where the links will open in Internet Explorer. Windows Phone 8.1's universal Bing SmartSearch features are incorporated into Cortana, which replaces the previous Bing Search app which was activated when a user presses the "Search" button on their device. Cortana includes a music recognition service. Cortana can simulate rolling dice and flipping a coin. 'Cortana's "Concert Watch" monitors Bing searches to determine which bands or musicians the user is interested in. It integrates with the Microsoft Band watch band for Windows Phone devices if connected via Bluetooth, it can make reminders and phone notifications. Since the Lumia Denim mobile phone series, launched in October 2014, active listening was added to Cortana, enabling it to be invoked with the phrase: "Hey Cortana"; it can then be controlled as usual. Some devices from the United Kingdom by O2 have received the Lumia Denim update without the feature but this was later clarified as a bug and Microsoft has since fixed it. Cortana integrates with services such as Foursquare to provide restaurant and local attraction recommendations and LIFX to control smart light bulbs.

**Chapter 4**

**CHALLENGES OF AI**

When we say that technology is driving and shaping the future of tomorrow, we do mean that technology has its definite effects on our lifestyle. With Artificial Intelligence in question, success and failure are the same sides of the coin. Technology also has some disadvantages and challenges related to it. In this article, we’ll discuss some problems of artificial intelligence and its solutions.

You’ll find a lot of information on the Internet about artificial intelligence and its applications. But not a lot of attention has been given to the challenges of artificial intelligence. Here are some of the artificial intelligence challenges:

**4.1: Building trust**

AI is all related to science and algorithms, which lies on the technical side. People who are completely unaware of these algorithms and technology that lies behind the working of Artificial intelligence find it difficult to understand its functioning.

Here is how artificial intelligence can face trust issues with humans, in spite of its ability to cut down on tasks. It is a basic human psychology that we often neglect something that we don’t understand. We as humans tend to stay away from anything complicated. And artificial intelligence being related to huge data, data science and algorithms, there are times when users do not grasp these concepts.

**4.2: AI human interface**

The challenge here is the shortage of data science skills within humans to get maximum output from artificial intelligence. As for the businesses, there is a shortage of advanced skills. Business owners need to train their professionals to be able to leverage the benefits of this technology.

Statistics reveal that 55% of survey respondents felt the biggest challenge was the changing scope of human jobs when everything will be automated.

**4.2: Investment**

Another challenge of artificial intelligence is that not all business owners or managers are willing to invest in it. The funds required to set up and implement Artificial Intelligence is very high, thus not every business owner or organization can invest in it or can try it for their own business.

**4.3: Software malfunction**

No technology or human is perfect. In case of software or hardware crashes, it is difficult to put a finger on what went wrong. On the other hand, tasks performed by humans can be traced.

However, with machines and inbuilt algorithms in the picture, it is difficult to blame someone or find the cause of a software/hardware crash. A recent example of this is the self-driving cars that took the life of a pedestrian.

**4.4: AI can’t replace every task**

Ever since AI made its way into our lives, we have a notion that all tasks, minute or a gigantic, can be managed by artificial intelligence. However, this can be true to a certain extent. But not all the tasks can be undertaken by AI.

AI is more like a tool that helps increase the productivity of a task. It has the ability to replace all the worldly tasks with machines and lets you do more productive tasks with your time. This is a tool that strengthens and boost the performance and efficiency of an average worker.

**4.5: Higher expectations**

AI could have serious issues with the expectations of the people around. People, in general, don’t have a detailed understanding of how AI works and hence they have extremely high expectations; some of which are not even possible.

Humans have a tendency to expect high from something that is trending and the outputs from it are also going to be excellent. However, like any other technology, there are certain limitations associated with AI.

Experts belonging to various industries are pretty sure that artificial intelligence will rule the next era, but there are some challenges that are a problem for artificial intelligence.

As a matter of fact, artificial intelligence has seen much hype in the market. However, AI is still in its initial phase. After reading this blog, we hope you have a better idea about the future of artificial intelligence! This might have enhanced your perspective on artificial intelligence as a whole.

**Chapter 5**

**Applications**

The applications of Artificial Intelligence are abundant and widespread, especially in developed countries. In fact, Artificial Intelligence has become such a mainstay in today’s world that it is taken for granted by the majority of people who benefit from its efficiency. Air conditioners, cameras, videogames, medical equipment, traffic lights, and refrigerators: all function by way of developments in “smart” technology or fuzzy logic. Large financial and insurance institutions rely heavily on Artificial Intelligence to process the huge quantities of information that are fundamental to their business practices. The application of computer speech recognition, though more limited in utilization and practical convenience, has made it possible to interact with computers by using speech instead of writing.

**5.1: 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.

**5.2: 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.

**5.3: 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.

**5.4: 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.it is quite convenient. On the medical diagnosis, stock trading, robot control, law, other hand, while it is possible to instruct some computers 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.

## 5.5: Transportation: Fuzzy logic controllers have been developed for automatic gearboxes in automobiles. For example, the 2006 Audi TT, VW Touaregand VW Caravell feature the DSP transmission which utilizes Fuzzy Logic. A number of Skoda variants (Skoda Fabia) also currently include a Fuzzy Logic-based controller. Today's cars now have AI-based driver assist features such as self-parking and advanced cruise controls. AI has been used to optimize traffic management applications, which in turn reduces wait times, energy use, and emissions by as much as 25 percent. In the future, fully autonomous cars will be developed. AI in transportation is expected to provide safe, efficient, and reliable transportation while minimizing the impact on the environment and communities. The major challenge to developing this AI is the fact that transportation systems are inherently complex systems involving a very large number of components and different parties, each having different and often conflicting objectives.

**Chapter 6**

**Pros and cons**

**Pros:**

1. Precision and Accuracy
2. Space exploration
3. Used for mining process
4. Can do laborious tasks
5. Fraud detection, manage records
6. Lacking the emotional side
7. Can do repetitive and time-consuming tasks
8. Robotic pets, Robotic radiosurgery
9. Function without stopping, Risk Reducing
10. Diagnosis and Treatment

**Cons:**

1. Cost incurred in the maintenance and repair
2. Not able to act any different
3. Lack the human touch
4. Lack a creative mind
5. Lack common sense
6. Unemployment
7. Abilities of humans may diminish
8. Robots superseding humans
9. Humans may become dependent on machines.
10. Wrong hands cause destruction

**Chapter 7**

**Conclusion**

Finally we can say that the Artificial Intelligence (AI) is the intelligence of machines and the branch of Computer Science that aims to create it.AI textbooks define the field as “The Study and Design of Intelligent Agents” where an intelligent agent is a system that perceives its environment and takes actions that maximize the chances of its success. John McCarthy, who coined the term in 1955, defines it as “The Science and Engineering of making intelligent Machines”

**Chapter 8**

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