

Artificial Intelligence and Human Thinking

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Abstract

I have chosen this topic to spotlight one of the most technological trend these days known as AI (Artificial Intelligent). AI has built upon the tools and techniques of many different disciplines, including formal logic, probability theory, decision theory, and management science, and linguistics and philosophy. In this paper, I will mainly discuss some important aspects related to AI which will provide the brief understanding of Artificial Intelligence. There are some advantages and disadvantages which provide knowledge to protect ourselves from the upcoming technological trend. I will also discuss some of the algorithms used in AI systems.

Keywords

AI, Artificial intelligence, Theories of intelligence.

I. Introduction

AI has built upon the tools and techniques of many different disciplines, including formal logic, probability theory, decision theory, and management science, and linguistics and philosophy. Artificial Intelligence is the field that describe the capability of machine learning just like humans and the ability to respond to certain behaviours also known. The need of Artificial Intelligence is increasing as the technology getting upgrade.

II. History of Artificial Intelligence

Artificial Intelligence was first introduced by John McCarthy in 1956 in his first academic conference. Afterwards, this technology became the centre of attraction for all the scientist to use this for machines for the ability of thinking and learn just like a normal human being. Alan Turing was able to put his hypotheses and questions into actions by testing whether “machines can think”? After series of testing (later was called as Turing Test) it turns out that it is possible to enable machines to think and learn just like humans. Turing Test uses the pragmatic approach to be able to identify if machines can respond as humans.

III. Description Artificial Intelligence

Artificial Intelligence is the field that describe the capability of machine learning just like humans and the ability to respond to certain behaviours also known. The need of Artificial Intelligence is increasing as the technology getting upgrade.

When AI was firstly introduced to the market, it has been the reason of the quick change in technology and business fields. Computer scientist are examine that by 2020, “85% of customer interactions will be managed without a human”. This means that human’s simple task or request is going to be depend on the computers and artificial intelligence just like when we use Siri or Galaxy to ask about the weather temperature or any information related to the internet or mobile app.

IV. Pros and Cons of Artificial Intelligence

AI offers reliability, cost-effectiveness, solve complicated problems, and make decisions. In addition to all, AI restrict data from getting lost. AI is applied nowadays in most of the fields whether business or engineering. One of the great tools in AI is called “reinforcement learning” which is based on testing success

and failure in real life to increase the reliability of applications. Although Artificial Intelligence made our lives easier and time saving because of which scientists are predicting the huge dependency on AI humanity. Scientists argue that by having an AI machines, people will be jobless and that will conclude in losing the sense of living. Since machines are learning and doing the things in more efficiently and effectively manner, which could be the reason of our extinction.

V. AI Algorithms and Models

AI is mainly based on algorithms and models which is basically a designed based and scientific findings. AI basically based on several models such as: Ant Colony Algorithm, Immune Algorithm, Fuzzy Algorithm, Decision Tree, Genetic Algorithm, Particle Swarm Algorithm, Neural Network, Deep Learning and in this report, I will discuss some of the most known models which are: Support Vector Machine, and the Artificial Neural Network.

- Support Vector Machine (SVM) it mainly used to build a classification model by finding an optimal hyper plane which is based on a set of training. As shown in (Fig. 1). It is also been used for pattern classification and trend prediction. However the applications for which it is used are mainly power transformer fault diagnosis, disease diagnosis and treatment optimization.

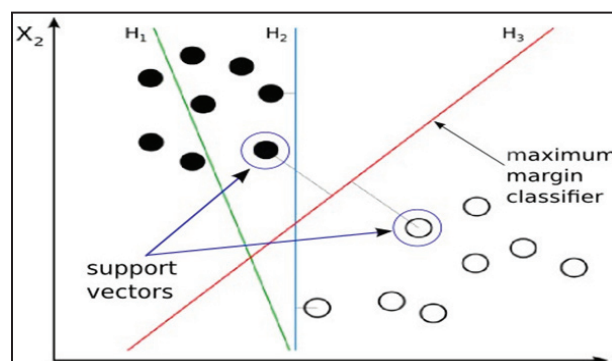


Fig. 1: Describes how SVM algorithm being represented in AI

- Artificial Neural Network (ANN) is a representative model for understanding the thoughts and the behaviour of the segment mainly in the terms of physical connection between neurons. ANN has been used to solve variety of problems through enabling the machine and to build mathematical models to imitate natural activities from brains. By using this algorithm, the machine will able to identify the solution of any problem just like human’s brain.

VI. Some Applications on Artificial Intelligence

AI can be designed by using different algorithms. These algorithms help the system to determine the expected response which will basically tell the computer what to expect and work accordingly. Here are some of the greatest AI applications that we are probably using in our daily life without knowing:

- Voice recognition.
- Virtual agents.
- Machine learning platform.

VII. Proposed Theory

In this paper, I will discuss some of the most common application of AI that we are using nowadays which is Virtual Assistants such as [Siri etc. Over the past few years smart assistants are becoming an important technology in most of the smart devices and most importantly, that these assistants are getting smarter than ever. In addition to the extreme help they provide us with the unique features. Artificial Intelligence works according to the following phases: getting the data, clean/manipulate/ prepare the data, train model, test data, and improve the data as mentioned in (Fig. 2). Before accessing the data, a business must verify the quality of the data to ensure that it meets the requirement.

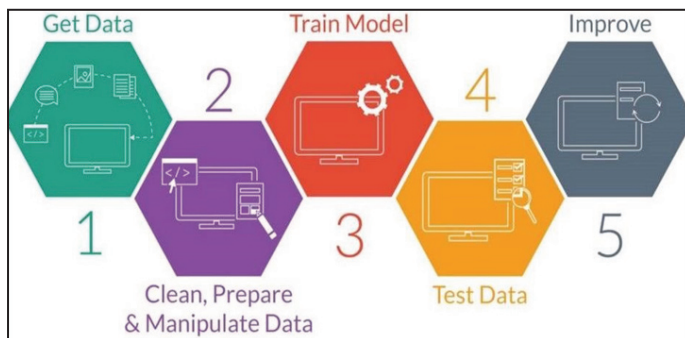


Fig. 2: Describes Phases of Developing Artificial Intelligence

VIII. Siri Virtual Assistant

Siri is the well-known virtual assistant which uses voice recognitions and typed command in order to perform a certain task within a device. Siri is considered one most used applications in AI. The application simply takes the input from the user such as (e.g. Call jones) and try to find the most related keywords used in this command. Siri tries to eliminate inconsistent result through using the language pattern recognizer and from there to active ontology by searching through the contacts, then it tries to relate the contact named “jones” and perform the task which is in this case is “Calling” and finally the output of this action will be “calling jones” and to consider all the possible situations refer to (Fig. 3).

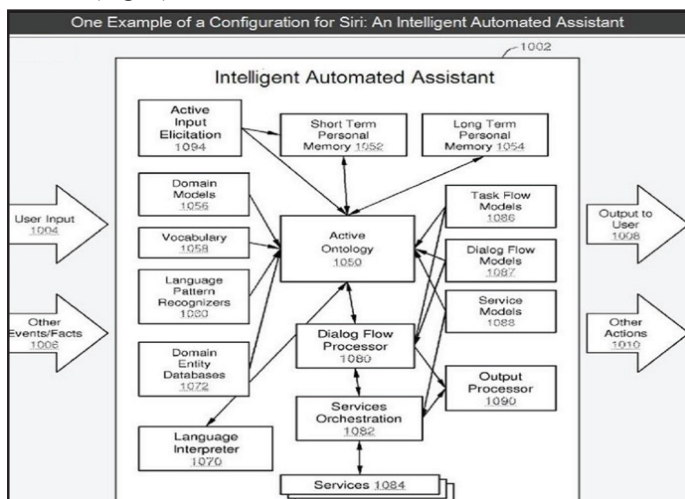


Fig. 3: Describes One Example of configuration for Siri

In another scenario the architecture of the virtual assistant is shown in (Fig. 4) as we can see the flow of the system starts by taking the input from the user, after that the system decide the conversation strategy module to be used which is a respond from the dialog management module, meanwhile a classification module response to an NLP module. Finally, using the conversation history database

is used to analyse the knowledge base construction module which will response back to the domain knowledge based as explained in detail in (Fig. 4).

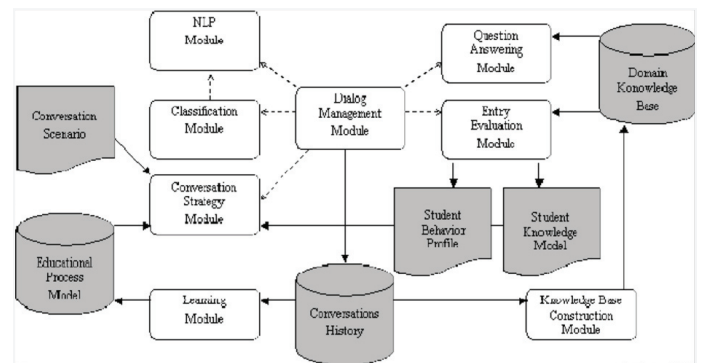


Fig. 4: Describes Proposed conversational agent architecture

IX. Conclusion

AI nowadays is being implemented in almost every field of study through several models such as SVM and ANN. We should be able to proceed with knowing and understanding the consequences of every technological trend. In my opinion, we are in the AI revelation era and therefore; we should adopt into this change and welcome it too by embracing AI and moving toward a better society.

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