

A Critical Study of Artificial Intelligence Applications

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1) Abstract -

This paper concentrates on the history of AI and how it began as an idea and, the definition of artificial intelligence and provides a detailed description of artificial intelligence and in favor and opposed. On top of this, this paper discusses some of the most common AI algorithms and models with a certain application on AI. Most importantly, the document will display additional AI design templates; how it is related to virtual assistants in trends.

2) Introduction-

I chose this theme to highlight one of the most technological trends of today known under the name of AI (Artificial Intelligent). I will talk about some of the most significant aspects associated with AI in which it will help to better understand artificial intelligence and its pros and cons to shield us from the future technological tendency. This article will also address some of the algorithms used within AI system.

3) Description For Artificial Intelligence -

Artificial intelligence is: the area of study which describes the capacity of machine learning as well as humans and the capacity to react to certain behavior also referred as AI. The necessity of artificial intelligence is growing daily. Since the introduction of AI in the marketplace, it has been responsible for the rapid evolution of technology and industries.

IT anticipates that by 2020, “85% of client interactions will be managed human-free”,

This means that the sheer demand from humans will depend on computers and artificial intelligence, just like when we use Siri or Galaxy to ask questions like whether temperature & etc.

It is crucial that we prepare for the revelation of AI, just as the United Arab Emirates did by setting up a minister of state for AI in Dubai

4) Pros and Cons -

AI provides dependability and profitability, solves complex issues and decision making, and AI prevents data loss.

AI is used today in most areas, be it commercial or engineering.

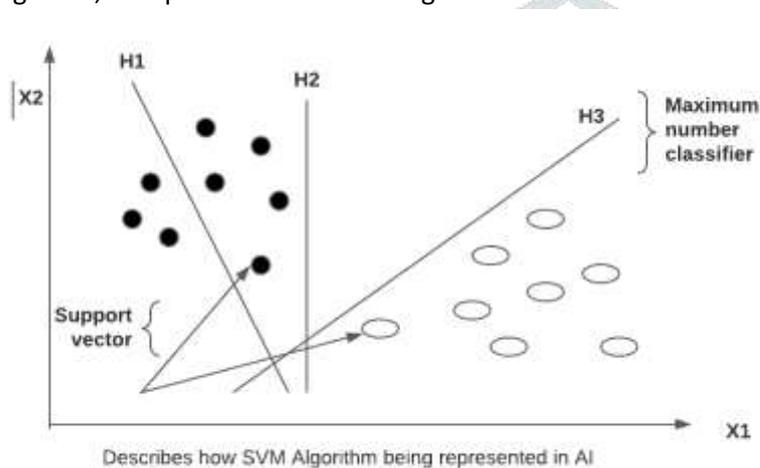
A major tool of AI is called ‘strengthening learning’, which is based on passing tests and failing in real life to increase reliability of application. Regrettably, AI has restricted abilities and features.

Even if artificial intelligence has facilitated our lives and has bought us more time than ever before, Scientists predict that because of the enormous dependence on AI, mankind may disappear, Scientists claim that by having AI machines, people will be unemployed and that this will lead to the loss of the meaning of life. Because machines learn and do things in a more efficient and effective manner in a timely manner, that may be the reason for our demise.

5) AI Algorithms and Models –

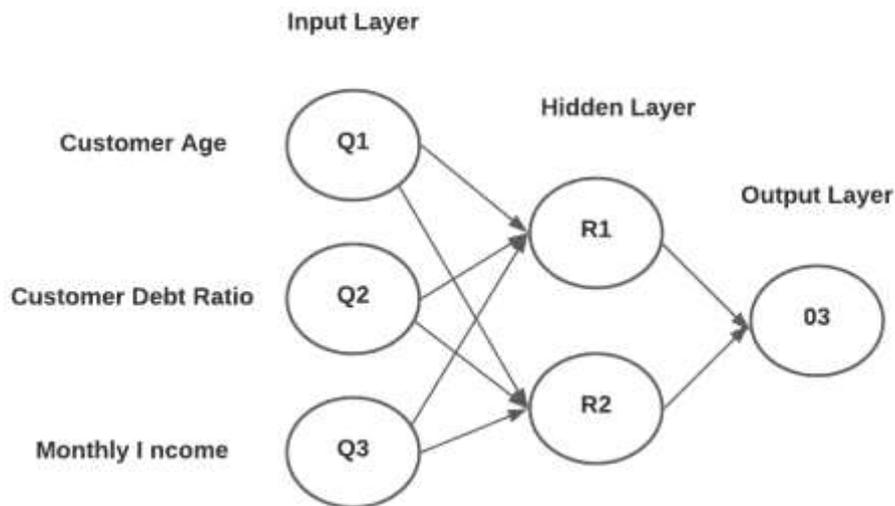
AI is primarily based on algorithms and patterns as a technique that conceived from scientific discoveries such as mathematics, statistics and biology. AI operates on a variety of models such as: Ant Colony Algorithm, Immune Algorithm, Fuzzy Algorithm, Decision Tree, Genetic Algorithm, Particle Swarm Algorithm, Neural Network, Deep Learning and in this report, I'm going to talk about a few of the best-known models that are: Vector Support Machine, and Artificial Neural Network.

- Support Vector Machine (SVM) where it is used to construct a classification template by finding an optimum hyperplane from a set of workout examples as shown in following figure, It is also used for model classification and trend forecasting many applications for example: power transformer defect diagnosis, the optimization of the diagnosis and treatment of diseases.



- Artificial Neural Network (ANN) is a model representing the understanding of thoughts and behaviors in terms of the physical connection among neurons. ANN was used to resolve various problems by allowing the machine to construct mathematical pattern to be able to emulate natural activities from the standpoint of the brain.

Using that algorithm, the machine can able to pinpoint the solution to any issue such as the human brain.



BASIC EXAMPLE OF ARTIFICIAL NEURAL NETWORK

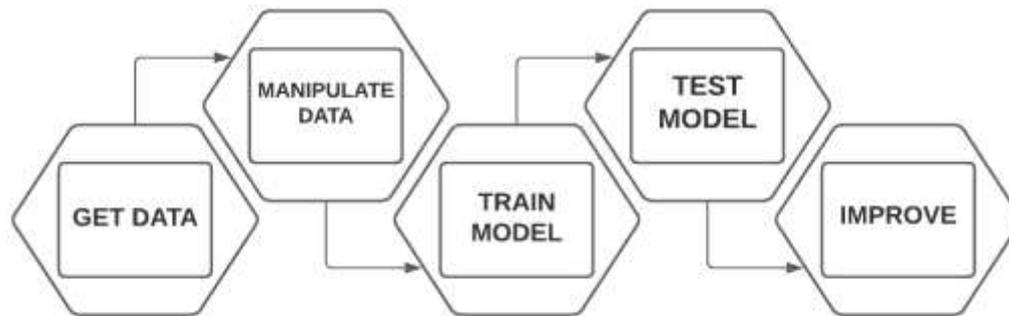
6) Some Applications on Artificial Intelligence –

The AI can be conceived using numerous algorithms. These algorithms assist the system determining the expected answer that is essentially going to tell the computer what to expect and will function as a result. Some of the biggest AI apps we probably use in our everyday lives unknowingly:

- o Voice recognition
- o Virtual agents
- o Machine learning platform
- o Ai optimized hardware
- o Decision management
- o Deep learning platform
- o Biomatters
- o Robotic process automation
- o Text analytics and NLP
- o Adaptive Manufacturing: Machines that are capable of learning a multitude of tasks through demonstrations, just as their human counterparts are able to

7) AI Design Models –

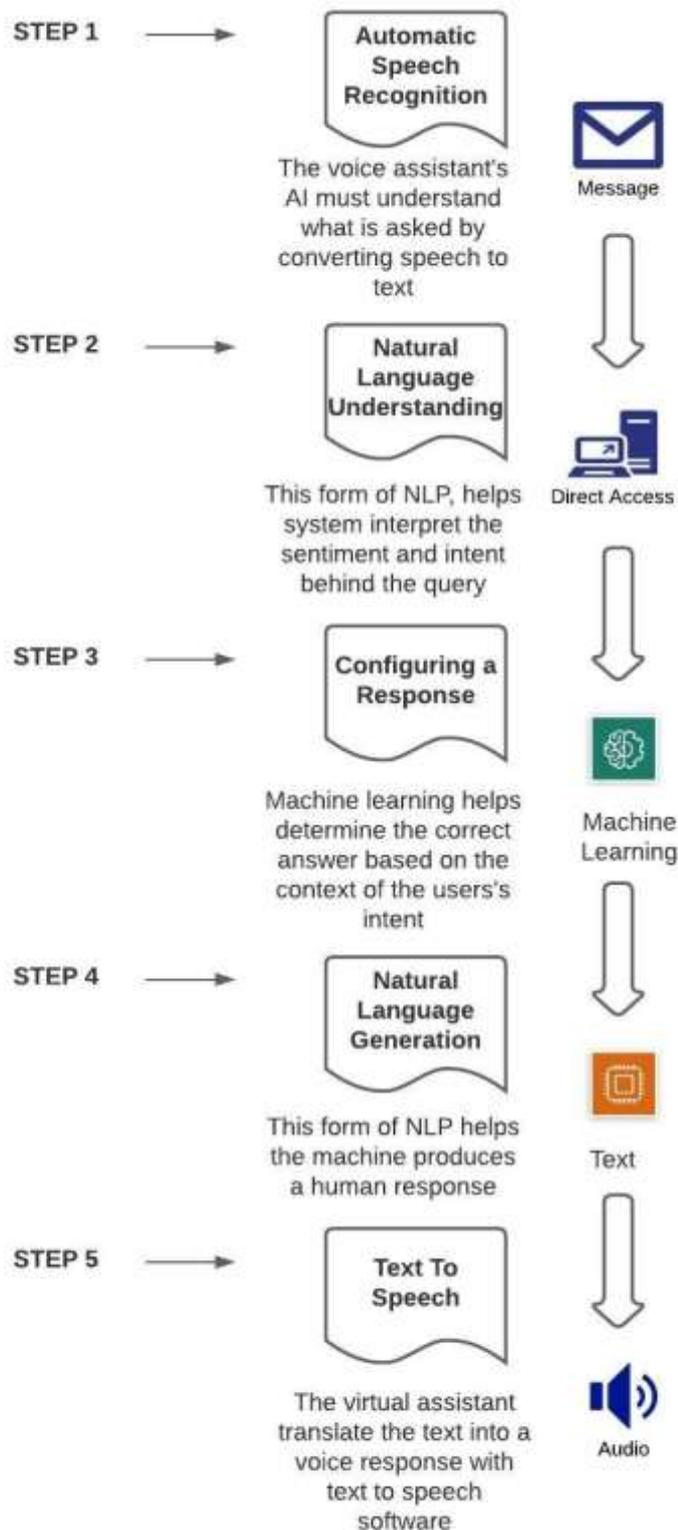
AI applications surround us a great deal and in this document. I'm going to talk about some of the most common AI apps that we use today, namely virtual assistants such as Siri , Cortana etc. In recent years, intelligent wizards have become a very common technology in most intelligent devices and that these wizards become smarter than ever. Apart from the impressive support they give us, is that each of these applications has its own characteristics. Artificial intelligence is carried out in the following phases: Data Recovery, Data Clean/Manipulate/Prepare, Model Training, Data Testing and Data Improvement as mentioned in following figure, Prior to accessing the data, a company needs to verify the quality of the data to make sure that it meets the requirements.



8) SIRI Virtual Assistant –

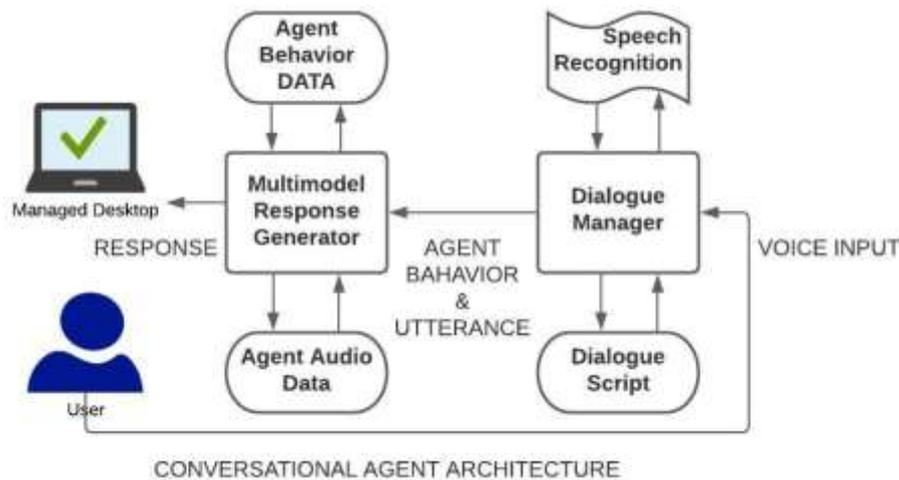
Siri is the well-known virtual wizard that uses voice recognition and typewritten control to perform a task in a device. Siri is regarded as one of the most widely used apps in AI. The application merely takes the user's entry such as like Call to someone in the contact list of the device eg. (call brother or want to open any application in the device) and Try to find the most linked key word used in this command. Siri attempts to address inconsistent results using the language model identifier and the ontology active through research through contact list and then tries to connect the named contact "brother" and carry out the task that is in this case "Call" and ultimately the outcome of this action will be "Call Brother" and take into account all possible situations in following figure.





EXAMPLE OF CONFIGURATION OF SIRI

- In a different hypothesis, the architecture of the virtual wizard means assistant is shown in the figure as we can see the flow from the system starts up taking the user's entry, after the system decides which chat strategy module to use which is a dialogue management module response, During this time, one classification module responds to one NLP module .Lastly, the Conversation History database is used to analyze the Knowledge Base Building Module which will answer field knowledge based on detailed explanation in the following figure.



9) CONCLUSION -

Today, AI is implemented in almost all fields of study by means of several models such as SVM and ANN. We should be in a position to know and understand the implications of each technology trend. I think we're in the age of AI disclosure, so we should adapt this change and embrace it as well through AI and moving towards a more positive Society.

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