



IJIRCCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 9, Issue 4, April 2021

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.488

 9940 572 462

 6381 907 438

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Arya: A Virtual Assistant and Chatbot

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ABSTRACT: The proposed project is a system which can interact with humans and answers questions on a certain domain. Today, the challenge is to build a system which will resemble human brain. Generally, the brain stores the memory in a decentralized manner across the brain with the help of neurons as opposed to a centralized manner in computer file system. The system can take inputs in written or voice format and respond the questions from a knowledge base. In most cases a chatbot does not have problem solving capabilities. Our system can solve data structure problem using deep neural network (DNN). With a given dataset the system can provide services to access data in format such as arrays, stacks, queues, and trees. Chatbots are not a recent development. They are simulations which can understand human language, process it and interact back with humans while performing specific tasks. For example, a chatbot can be employed as a helpdesk executive. The first chatbot was created by Joseph Weizenbaum in 1966, named Eliza. It all started when Alan Turing published an article named "Computer Machinery and Intelligence", and raised an intriguing question, "Can machine think?", and ever since, we have seen multiple chatbots surpassing their predecessors to be more naturally conversant and technologically advanced. These advancements have led us to an era where conversations with chatbots have become as normal and natural as with another human.

KEYWORDS: Chatbot Pattern, matching Machine learning, Natural dialog interfaces, Natural language processing, Human-computer interaction.

I. INTRODUCTION

Arya is a virtual assistant and chatbot. She was supposed to be a virtual buddy for the sake of casual chatting but over the course of period she evolved into something more than just a conversational partner. She is fully capable of holding a conversation making her not only a capable assistant but also a reliable partner. She is capable of recognizing auditory commands. She can do anything that an assistant can.

II. LITERATURE REVIEW

There are numerous proposals for Virtual Assistants and AI in the literature and in the market. Nowadays, AI is frequently used in most industries, supermarkets, factories. An AI which can process human speech and respond to it in proper ways is described in paper. Artificial intelligence (AI) is intelligence demonstrated by machines, unlike the natural intelligence displayed by humans and animals, which involves consciousness and emotionality. The distinction between the former and the latter categories is often revealed by the acronym chosen. 'Strong' AI is usually labelled as artificial general intelligence (AGI) while attempts to emulate 'natural' intelligence have been called artificial biological intelligence (ABI). Leading AI textbooks define the field as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Colloquially, the term "artificial intelligence" is often used to describe machines that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving".



III. METHODOLOGY

The attendance system was implemented using Python and machine learning. Algorithms like Random Forest and Decision Tree are implemented for the sake of proposed project. These algorithms are used to divide the subjected variable into different classes and then predict the class for a given input. For example, classification algorithms can be used to classify emails as spam or not. Python, PHP and MySQL is used for this project. The number of features in the language itself is modest, requiring relatively little investment of time or effort to produce programs. Python syntax is designed to be readable and straightforward. The Assistant once triggered by a keyword will look for instructions through auditory means. Once received, the instruction will be executed.

IV. NEED OF PROJECT

Today, the amount of data that is generated, by both humans and machines, far outpaces humans' ability to absorb, interpret, and make complex decisions based on that data. Artificial intelligence forms the basis for all computer learning and is the future of all complex decision making. As an example, most humans can figure out how to not lose at tic-tac-toe, even though there are 255,168 unique moves, of which 46,080 ends in a draw. Far fewer folks would be considered grand champions of checkers, with more than 500 x 10¹⁸, or 500 quintillion, different potential moves. Computers are extremely efficient at calculating these combinations and permutations to arrive at the best decision. AI (and its logical evolution of machine learning) and deep learning are the foundational future of business decision making.

Advantages: One of the advantages is using a Virtual Assistant will insure accessibility for less gifted. The Virtual Assistant consumes way less time for the tasks to be completed than a human being. A machine can look through millions of threads to come to a conclusion which isn't even humanly possible.

Disadvantages: Anything that does not fit in the algorithm will not be processed and will only make things more complicated.

V. IMPLEMENTATION

Python:

Python is an interpreted high-level general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects. Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. Python is often described as a "batteries included" language due to its comprehensive standard library.

PHP (Pre-processor Hypertext) & MySQL (My Structured Query Language):

PHP is a High level programming language installed on a web server which receives inputs from user via the internet and processes these inputs to produce dynamic outputs. A PHP can access databases which are installed on server. It can able to receive inputs (Serial number, ID number etc.) from clients and get the entire information associated with it and sent it back to the client. It also validates the information before processing the same. MySQL is a language used to control the functioning of a database. It supports several data operations such as storing new data, updating, deleting, retrieving etc. It requires a User Name and password for the authorization to access the database.

1. Architectural model

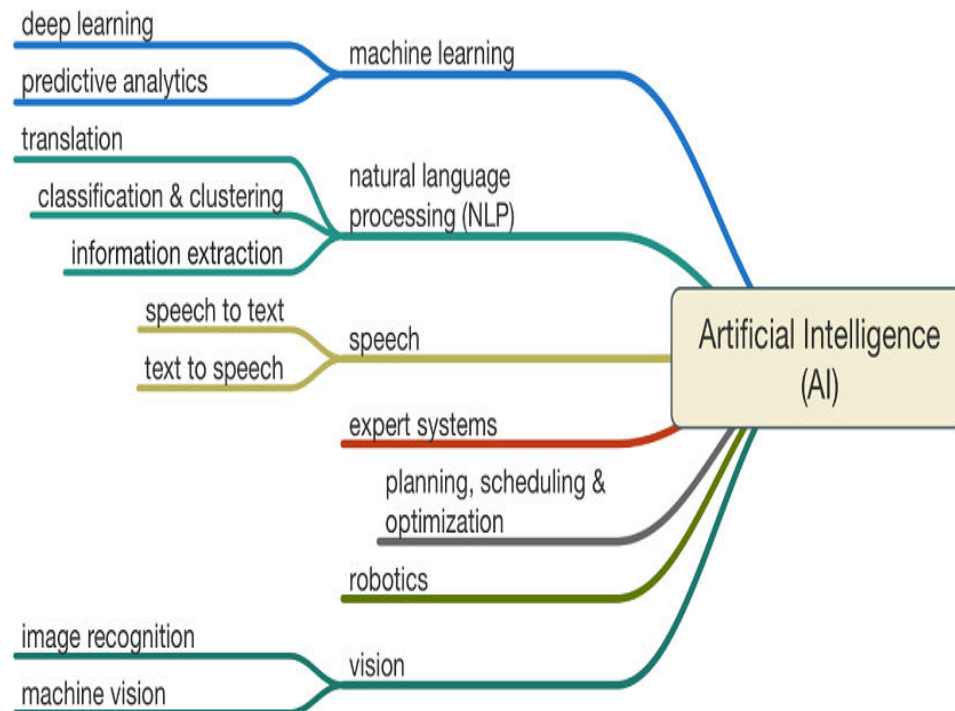


Figure 1-Architectural Label

Hardware Requirement

- Processor – i3
- Hard Disk – 5 GB
- Memory – 1GB RAM
- Barcode Reader

Software Requirement

- Windows Xp, Windows 7(ultimate, enterprise)
- Sql 2005
- Visual studio 2008
- Python 9.0

2. UML DESIGN

2.1 Random Forest Algorithm

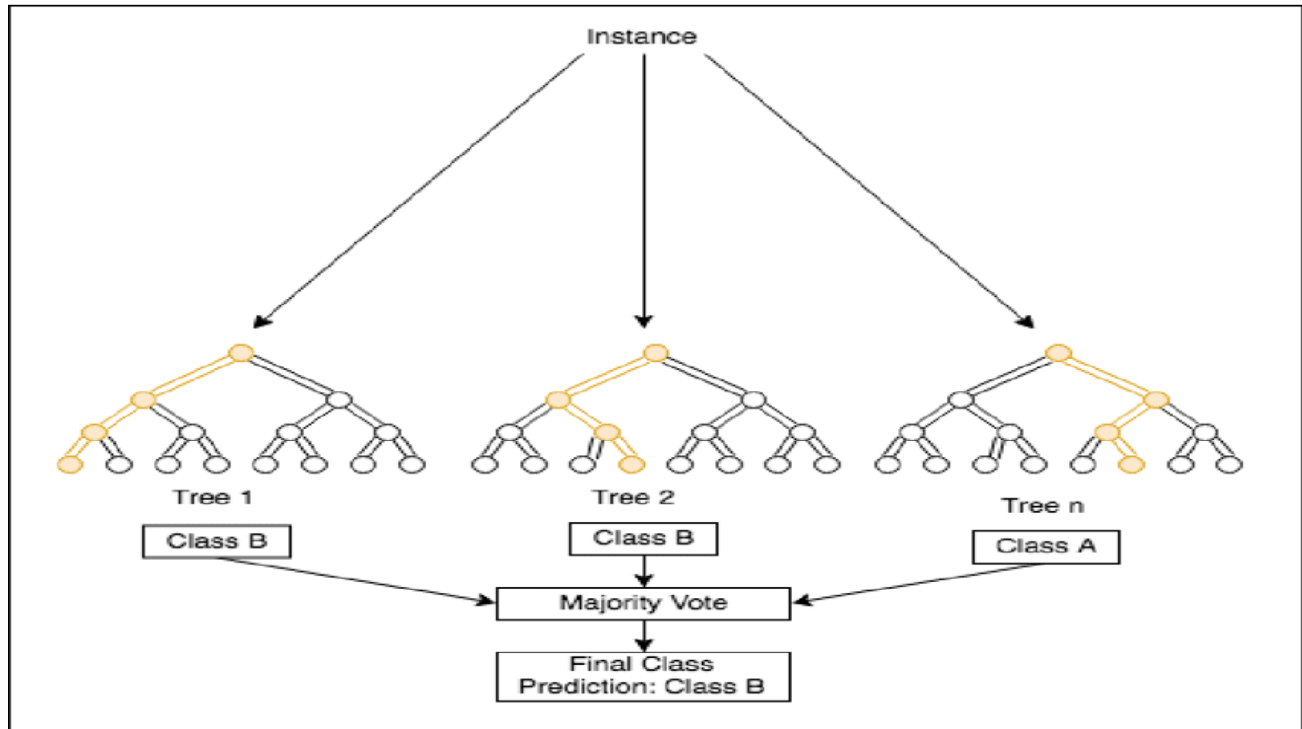


Figure 2-Random Forest Algorithm

2.3 Decision Tree Algorithm

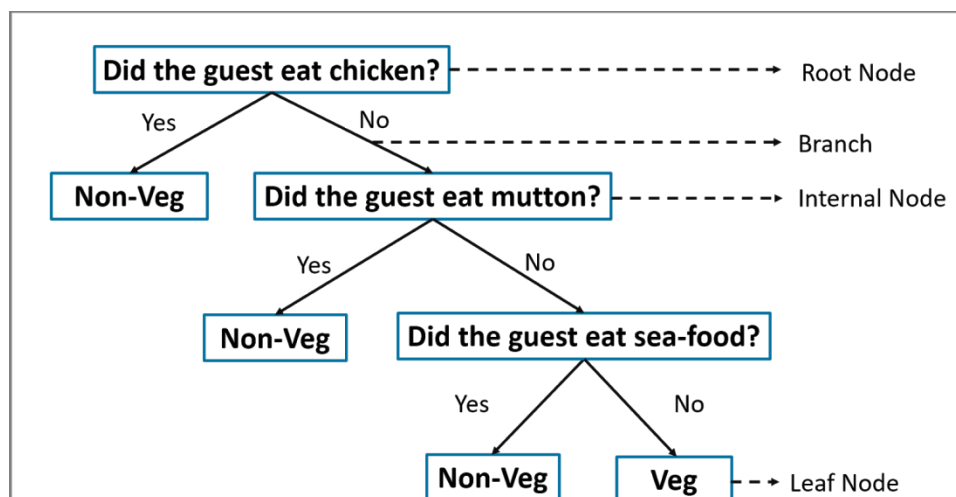


Figure 3-Decision Tree Algorithm



VI. CONCLUSION

From my perspective, chatbots or smart assistants with artificial intelligence are dramatically changing businesses. There is a wide range of chatbot building platforms that are available for various enterprises, such as e-commerce, retail, banking, leisure, travel, healthcare, and so on. Chatbots can reach out to a large audience on messaging apps and be more effective than humans. They may develop into a capable information-gathering tool in the near future.

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