

Automated Interactive Agent Using Artificial Intelligence and Machine Learning

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Abstract

Specifically it will look at development of Interactive agent as a channel for information distribution. The program selects the closest matching response from closest matching statement that matches input utilizing WordNet, it then chooses response from known selection of statements for that response. The paper comes under a major Domain of AI. It also has a sub domain as machine learning, because machine learning algorithm is used in this paper. The scope of this paper is to show the closest match of the input which is provided by the customer. It interacts with a customer until the customer queries get solved. It is used in the business website purpose. Natural Language Processing, allowing users to communicate with college Interactive agent using natural language input and to train Interactive agent using appropriate Machine Learning methods so it will be able to generate a response. There are numerous applications that are incorporating a human appearance and intending to simulate human dialog, yet in most part of the cases knowledge of Interactive agent is stored in a database created by a human expert.

Keywords: AI, ML, NLP, Chat Bot

Introduction

Interactive agent applications streamline interactions between people and services, enhancing customer experience. At the same time, Agent offer companies new opportunities to improve the customers engagement process and operational efficiency by reducing the typical cost of customer service. To be successful, an Interactive agent solution should be able to effectively perform both of these tasks. Human support plays a key role here Regardless of the kind of approach and the platform, human intervention is crucial in configuring, training and optimizing the Interactive agent system. Automated Interactive Agent Framework Regardless of the use case for which it is built, an Interactive agent basic objective is the same find and return the information a user has requested or assist them with a task. This framework can be easily customized for specific tasks and industry requirements.

Artificial intelligence (AI), the ability of a digital computer or computer controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the paper of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience. Since the development of the digital computer, it has been demonstrated that computers can be programmed to carry out very complex tasks as for example, discovering proofs for mathematical theorems or playing chess with great proficiency.

Still, despite continuing advances in computer processing speed and memory capacity, there are as yet no programs that can match human flexibility over wider domains or in tasks requiring much everyday knowledge.

Artificial intelligence (AI) is intelligence demonstrated by machines as opposed to natural intelligence displayed by animals including humans. Leading AI textbooks define the field as the study of "intelligent agents": any system that perceives its environment and takes actions that maximize its chance of achieving its goals. Some popular accounts use the term "artificial intelligence" to describe machines that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving", however, this definition is rejected by major AI researchers.

Related Work

Interactive agents, or conversational interfaces as they are also known, present a new way for individuals to interact with computer systems. Traditionally, to get a question answered by a software program involved using a search engine, or filling out a form. A chat bot allows a user to simply ask questions in the same manner that they would address a human[1][2]. Artificial intelligent fields, there are some hybrid strategies and adaptive techniques that make increasingly complex techniques. That, yet these days there are additionally several Natural Language Processing (NLP) and intelligent systems that could comprehend human language. Artificial intelligent systems learn themselves and retrieve insight by perusing required electronic articles that have been existed on the web[3][4].

The Interactive agent (otherwise called a chatterbox, Bot, or Artificial Conversational Entity) is an AI program that copies human discussions including content and communication in natural language utilizing artificial intelligence methods, for example, Natural Language Processing (NLP), picture and video processing, and voice analysis, Interactive agent for business management system has been created utilizing artificial intelligence algorithms that examine the user queries. This Interactive agent system is an internet application that gives an answer to the broken down queries of the user. Users simply need to choose the classification for inquiries and afterward ask the question to the bot that utilizes for noting it. Artificial intelligence has been incorporated to respond to the user's inquiries. Then the user can procure the fitting solutions to their inquiries. The Interactive agent behaving as a human conversational partner are designed to comprehend a conclusive human response. In today's world, it is difficult to collect correct information easily while Using simply an Interactive agent can be a solution to this problem. Recruiters can use this in day-to-day life to automate time-consuming tasks[5][6].

A comparison is done based on their ease of usage, using different analytic tools. The Interactive agent is built using Artificial Intelligence Mark up Language contain analytics' raw data and the required data is fetched from the analytics tool's raw data. Every website note all the details user made. AIML comprises of possible queries and their responses. It consists of 3 elements such as template, categories and pattern. Each category contains pattern and a template. Patterns are the possible queries that the bot-user may type in and the

template is the response to the respective pattern. There are 3 query scenarios that can be considered. Scenario 1: Domain Related Query Scenario 2: General Queries Scenario 3: None of the above The users can type to web analytics their query related to and will get an immediately reply. Web analytics tools are mastered to avoid the time taking task. The system is developed using raw analytics data[7][8].

Methodology

Machine learning programs can perform tasks without being explicitly programmed to do so. It involves computers learning from data provided so that they carry out certain tasks. For simple tasks assigned to computers, it is possible to program algorithms telling the machine how to execute all steps required to solve the problem at hand; on the computer's part, no learning is needed. For more advanced tasks, it can be challenging for a human to manually create the needed algorithms. In practice, it can turn out to be more effective to help the machine develop its own algorithm, rather than having human programmers specify every needed step.

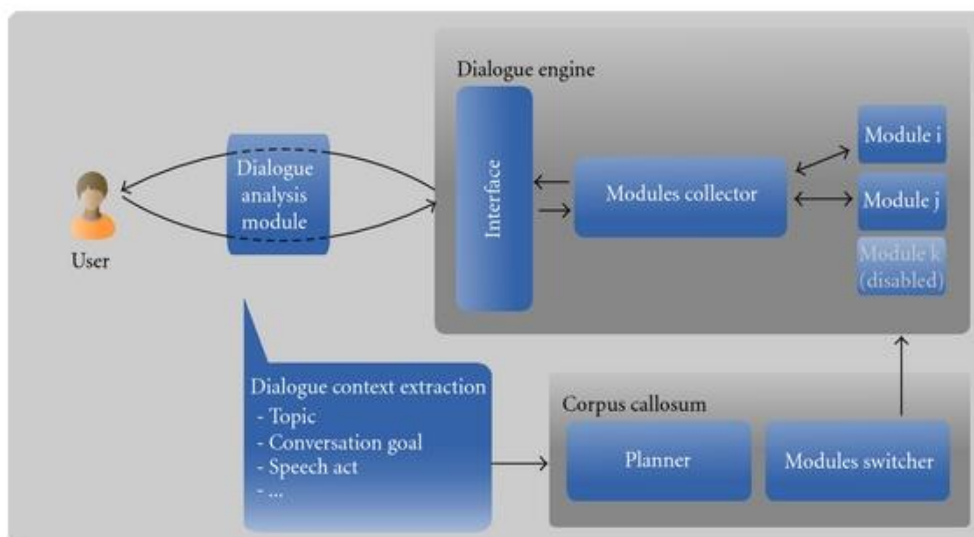


Figure 1: Architecture of an Interactive agent.

We reviewed the basic chatbot types above, and now it's time to find out how they operate for instance rule based chatbots have a list of interactions based on 'playbooks' the developer set up on the back end of the user interface. It's common for such bots to work by choosing options to click. For instance, if the client buys shoes, they should select 'Red' or 'White' colour in rule-based chatbot.

Step 1: Create a paper name.

First when you finished installed the Pycharm IDE in your computer, open it and then create a "paper name" after creating a paper name click the "create" button.

Step 2: Create a python file: Second after creating a paper name, "right click" your paper name and then click "new" after that click the "python file".

Step 3: Name your python file: Third after creating a python file, Name your python file after that click “enter”.

Step 4: The actual code: This is the actual coding on how to create Chatbot in Python, and you are free to copy this code and download the full source code given below.

Experiments and Results

It means the study of meanings in a given language. Process of extraction of insights from the text. It includes the repetition of words, who said to whom? etc. It understands that how people communicate with each other, in which context they are talking and so many aspects. The code given below is for the design of this paper.



Figure 2: Sample Chatbot

Today's buyers prefer social media over emails and other messaging tools, as they get quick information easily accessible to them at their convenience. Wondering Well, chatbots allow buyers to find information and solutions no matter what device they use. It fills the gap between businesses and consumers, allowing them to improve the responses as per its clients' requirements. In a nutshell, it helps brands to build a credible business model that provides the best possible customer experience. Major brands across Technology, AI, Online Retailers, Consumables and Electronics are constantly working to create their own chatbot platforms.

As Chatbots can be extremely helpful for a business to create a strong brand image in 2021 and they will continue to evolve and perform a vital role in customer service for all different types of companies, here's how Top 4 Chat-Bot Trends to Watch for in 2022 Chatbots are Now Based on Natural Language Processing (NLP):

In an effort to stand out and get into the spotlight, businesses have already started their research on Natural Language Processing (NLP) to understand and send accurate responses to users' inquiries. Here, the ultimate goal is to allow users and AI to communicate more naturally and understand as well as respond to complex requests.

Bots for Internal Business Communications:

Along with addressing common problems and answering customer queries, chatbots can also be used to communicate with employees and finish HR-related tasks and transactional functions. From assisting the employee onboarding process, filing screen questions, recording answers to guiding new employees through company protocols, chatbots are now taking charge of internal business communications and helping IT desk agents to save time and fix more complicated issues.

Voice-Bots are also Set to Help Businesses Enhance Customer Service:

Today, customers want to consume information rapidly and are increasingly shifting to voice search given the technological advancements, and hence, now, messaging platforms that have both voice and text-based programs are becoming a preferred method for companies to engage and connect with their target audience.

Live Chatbots to Bring a Human Touch

Chatbots are taking over a number of business sectors and are now ready to engage with the target market by communicating with them using complete sentences which have a natural, conversational flow.

It is estimated that by the end of 2021, chatbots will have seamless and realistic conversations with the customers and will help enterprises to further improve their customer engagements.

Conclusions and Future Scope of Work

This study aimed to analyse the types of chatbots and the possibility of their use as language learning medium. From the results, it is known that chatbot can be categorized into three types, and has advantages and disadvantages. As the advantages, chatbot is reported can help language learners through six ways:

- (1) students tend to feel more relaxed talking to a computer than to a person;
- (2) chatbots are willing to repeat the same material with students endlessly;
- (3) many bots provide both text and synthesized speech, allowing students to practice both listening and reading skills;
- (4) Bots are new and interesting to students;
- (5) students have an opportunity to use a variety of language structures and vocabulary that they ordinarily would not have a chance to use;
- (6) chatbots could potentially provide quick and effective feedback for students' spelling and grammar.

However, chatbot also reported to have a flaw on its novelty aspects and need to be improved. This study also observed a chatbot-based Japanese language learning medium developed by the author, namely Gengobot. As the results, Gengobot have a high potential to

be used as a Japanese language learning medium especially in learning grammar, yet need to be developed further in its' technology and features.

In this constantly evolving world of technology, businesses that still manage and prefer one-on-one or telephonic conversations are considered to be outdated. Today, customers have become more critical when it comes to instantaneous forms of communication while using different messenger applications. As per the current market scenario, enhancing customer experience is the only way to increase the conversion rate. Experiences that make customers' and employees' lives more easy, safe, rewarding and of course productive!

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