**CHATBOT**

A chatbot is artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, and mobile apps or through the telephone.

A chatbot is a [software](https://en.wikipedia.org/wiki/Software_agent) application used to conduct an on-line chat [conversation](https://en.wikipedia.org/wiki/Conversation) via text or [text-to-speech](https://en.wikipedia.org/wiki/Speech_synthesis), in lieu of providing direct contact with a live human agent.

Designed to convincingly simulate the way a human would behave as a conversational partner, chatbot systems typically require continuous tuning and testing, and many in production remain unable to adequately converse or pass the industry standard [Turing test](https://en.wikipedia.org/wiki/Turing_test).

The term "ChatterBot" was originally coined by [Michael Mauldin](https://en.wikipedia.org/wiki/Michael_Loren_Mauldin) in 1994 to describe these conversational programs

Chatbot are used in [dialog systems](https://en.wikipedia.org/wiki/Dialog_system) for various purposes including

1. customer service
2. Request routing, or information gathering.

While some chatbot applications use extensive

1. word-classification processes
2. [natural language processors](https://en.wikipedia.org/wiki/Natural_language_processing)
3. sophisticated [AI](https://en.wikipedia.org/wiki/Artificial_intelligence)

Most chatbots are accessed on-line via website popups or through [virtual assistants](https://en.wikipedia.org/wiki/Virtual_assistant_(artificial_intelligence))

They can be classified into usage categories that include:

1. [commerce](https://en.wikipedia.org/wiki/Conversational_commerce) ([e-commerce](https://en.wikipedia.org/wiki/E-commerce) via chat)
2. [Education](https://en.wikipedia.org/wiki/Education)
3. [Entertainment](https://en.wikipedia.org/wiki/Entertainment)
4. [Finance](https://en.wikipedia.org/wiki/Finance)
5. [Health](https://en.wikipedia.org/wiki/Health)
6. [News](https://en.wikipedia.org/wiki/News)
7. [Productivity](https://en.wikipedia.org/wiki/Productivity)

**Chatbot Content Management:**

The content of a chatbot should be managed by the people who are most familiar with it.

A chatbot is often described as one of the most advanced and promising expressions of interaction between humans and machines.

However, from a technological point of view, a chatbot only represents the natural evolution of a Question Answering system leveraging Natural Language Processing (NLP).

Formulating responses to questions in natural language is one of the most typical Examples of Natural Language Processing applied in various enterprises end-use applications.

### Behind the Scenes: How a Chatbot Works

**How a Chatbot Works:**

As you can see in this graphic, a chatbot returns a response based on input from a user. This process may look simple; in practice, things are quite complex.

There are two different tasks at the core of a chatbot:

1. **User request analysis**
2. This is the first task that a chatbot performs. It analyzes the user’s request to **identify the user intent** and to **extract relevant entities**.
3. The ability to identify the user’s intent and extract data and relevant entities contained in the user’s request is the first condition and the most relevant step at the core of a chatbot: If you are not able to correctly understand the user’s request, you won’t be able to provide the correct answer.
4. **Returning the response**
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6. The ability to identify the user’s intent and extract data and relevant entities contained in the user’s request is the first condition and the most relevant step at the core of a chatbot: If you are not able to correctly understand the user’s request, you won’t be able to provide the correct answer.

### ****Returning the Response:****

Once the user’s intent has been identified, the chatbot must provide the most appropriate response for the user’s request. The answer may be:

* a generic and predefined text
* a text retrieved from a knowledge base that contains different answers
* a contextualized piece of information based on data the user has provided
* data stored in enterprise systems
* the result of an action that the chatbot performed by interacting with one or more backend application; or,
* a disambiguating question that helps the chatbot to correctly understand the user’s request.

**Important of Chatbot:**

1. Chatbot applications streamline interactions between people and services, enhancing customer experience.
2. At the same time, they offer companies new opportunities to improve the customer’s engagement process and operational efficiency by reducing the typical cost of customer service.
3. To be successful, a chatbot solution should be able to effectively perform both of these tasks.
4. 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 chatbot system.

**Application:**

1. There are different approaches and tools that you can use to develop a chatbot.
2. Depending on the use case you want to address, some chatbot technologies are more appropriate than others.
3. In order to achieve the desired results, the combination of different AI forms such as natural language processing, machine learning and semantic understanding may be the best option.
4. In upcoming posts, we will give you an overview of the main chatbot applications so you can evaluate them based on your specific needs and desired goals.

**DEF:**

Chatbot is an Artificial Intelligence(AI) software that can simulate a conversation with a user in a natural(general) language through messaging applications,websites,mobile apps.

**Importance:**

* One of the most advanced and promising expressions of interaction between humans and machines.
* Reduces the cost in terms of customer service.
* Improve the customer experience and engagement process.

**Tasks of Chatbot:**

* User request analysis.
* Returning the response.

**How it Works:**

AI

User text or request ------------------------------> Returning appropriate response

**User request analysis :**

Chatbot analyses the user’s request to identify the user’s intent and extracts the relevant entities.

This is the important step in the chatbot because without understanding the user’s request, providing the correct answer isn’t possible.

**Returning response:**

After identifying the user’s intent, an appropriate response should be provided to the user. The answer might be one of the following -

* a general and predefined text.
* text retrieved from a knowledge base having different answers for the same question.
* relevant information based on the user's request.
* data stored in the database.
* result of interaction with backend applications.
* a question so that chatbot may understand the user’s request better.

**Types of fields to include in the chatbot to improve the quality of analysis or to better understand the user’s request :**

* NLP(Natural Language Processing).
* Machine learning.
* Semantic understanding.

**CHATBOT**

**what is a chatbot ?**

A chatbot is the is a computer program which conducts conversation between the user and a computer through auditory or textual methods . it works as the realworld conversational part now , for now the chatbot are completing 30% of the task Companies employ these chatbots for services like customer support, to deliver information, etc. Although the chatbots have come so far down the line, the journey started from a very basic performance and these are expected to complete the 80% of task in the coming decades

A chatbot also known as a chatterbot, bot, artificial agent, etc is basically software program driven by artificial intelligence which serves the purpose of making a conversation with the user by texts or by speech. Famous examples include Siri, Alexa, etc.

**Evalution of chatbor**:

It started in 1966 when Joseph Weizenbaum made a natural language conversational program that featured a dialog between a user and a computer program. With this great breakthrough came the new age chatbot technology that has taken an enormous leap throughout the decades.

|  |  |  |
| --- | --- | --- |
| **Traditional Bots** | **Current Bots** | **Future Bots** |
| System Driven | Driven by back-and-forth communication | Communication at multiple-levels |
| Automation based | The automation is at the task level | Automation at the service level |
| Minimal Functionality | Maintains system context | Ability to maintain task, system and people context |
| Maintained only system context | Maintains task context as well | Introduction to master bots and eventually a bot OS as well. |

**Limitations of chatbot:**

**1.Domain Knowledge :**

Since true artificial intelligence is still out out of reach it becomes difficult for any chatbot to completely fathom the conversational boundaries when it comes to conversing with a human.

**2. Personality:**

Not being able to respond correctly and fairly, poor comprehensional skills has been more than frequent error for any chatbot so adding the personality to chatbot is still a benchmark that seems the kind far away

We can define the chatbots into two categories, following are the two categories of chatbots:

1. **Rule-Based Approach** – In this approach, a bot is trained according to rules. Based on this a bot can answer simple queries but sometimes fails to answer complex queries.
2. **Self-Learning Approach –**These bots follow the machine learning approach which is rather more efficient and is further divided into two more categories.
   * **Retrieval-Based Models** – In this approach, the bot retrieves the best response from a list of responses according to the user input.
   * **Generative Models** – These models often come up with answers than searching from a set of answers which makes them intelligent bots as well.

**ChatterBot:**

We have to consider few things in chatterbot like

* We must know the target audience
* We must understand Natural language communication
* We have provideresponces for targeted audience

Chatter Bot is :

* A python Library
* Gives Automated Responses
* Language Independent
* Machine Learning Algorithms(to produce variety of responses)
* Train Data

**How does a chatterbot works ?**

Chatter box makes it easy to create a software that engages in conversation every time a chatbot get an input from user it saves the input and the response which helps the chatbot with no initial knowledge to evolve using the collected response with increase response the accuracy is going to be increased and the program also selects the closest matching response from the closest matching statement that matches the input.it chooses the response from the known selection of statements from the response