



Chatbot

For Prelims: Chatbot, Artificial Intelligence, Natural Language Processing.

For Mains: Ethical Issues Involved with Artificial Intelligence.

Why in News?

Microsoft's new version of **Bing search engine** includes a [chatbot](#) that **can answer questions in clear language**. However, some of the answers **generated by the chatbot have been inaccurate, misleading, or bizarre**.

- This has led to concerns that the chatbot has **become sentient** or aware of the world around it.

What is a Chatbot?

- Chatbots are **computer programs designed to simulate conversation** with human users, usually through **text-based interfaces** like messaging apps or websites.
- They use [natural language processing \(NLP\)](#) and **machine learning algorithms** to understand and respond to user input in a way that mimics human conversation.
- They are used in a **variety of industries, including retail, healthcare, finance, and entertainment**, to improve customer service and automate repetitive tasks.

How Artificial Intelligence Based Chatbots Process Information?

- Some chatbots are powered by a kind of [artificial intelligence](#) called a **neural network**.
- A **neural network is a type of machine learning algorithm** that uses mathematical models inspired by the structure and function of the human brain.
 - It consists of **interconnected nodes, or artificial neurons**, that process information and learn to recognize patterns in data through repeated exposure.
 - As the neural network analyses large amounts of data, **it can adjust its parameters to improve its accuracy** in predicting outcomes or classifying objects.
- Researchers started building neural networks called **large language models** that learn from **massive amounts of digital text, such as books, online articles, and chat logs**. Example: Microsoft's Copilot and [Open AI's Chatgpt](#).

What are the Issues Associated with Chatbots?

- **Inaccuracy:** Chatbots may provide inaccurate or incomplete information if they don't understand the user's intent or the context of their question. This can lead to **frustration and a poor user experience**.
- **Security and Privacy Concerns:** Chatbots may collect sensitive information from users, such as personal details or credit card information, which can be **vulnerable to data breaches or other security threats**.
- **Ethical Considerations:** Chatbots can perpetuate bias or discrimination if they are not designed

with inclusivity and diversity in mind.

- Additionally, there are **concerns around the use of chatbots in fields such as healthcare**, where incorrect or misleading information could have serious consequences for patients.

Way Forward

- **Ethics and Inclusivity:** Chatbots should be designed with ethical considerations in mind, to ensure that they do not perpetuate bias or discrimination.
 - Additionally, chatbots should be designed to **be inclusive of all users, regardless of their background or abilities**.
- **Collaboration:** Collaboration between **humans and chatbots can help to improve the accuracy and effectiveness of chatbot responses**, while also providing a more human-like experience for users.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q1. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a)** 1, 2, 3 and 5 only
- (b)** 1, 3 and 4 only
- (c)** 2, 4 and 5 only
- (d)** 1, 2, 3, 4 and 5

Ans: (b)

[Source: IE](#)

PDF Reference URL: <https://www.drishtiias.com/printpdf/chatbot-6>