Paper title

Author

Abstracts

Keywords

1. Introduction { with citations}

What is chatbot? And short history

Chatbots are pre-trained with knowledge (Bhattacharjya et al., 2022) and showcased as programs which creates human AI interaction (Adamopoulou & Moussiades, 2020a) either for satisfaction of user or simulation of offline agents. (Lowry, Romano, Jenkins, & Guthrie, 2009).

Alan Turing: “Can Machines think” working on intelligent machine. (Bhattacharjya et al., 2022)

Emotion is another essential aspect to humanize a chatbot, and there have been many approaches to building an emotionally aware chatbot. (PamungKas, 2019)

ELIZA 1966 simulated a psychotherapist’s operation, returning the user’s sentences in the interrogative form. (Weizenbaum (1966). Eliza uses pattern matching and a response selection scheme based on templates. (Brandtzaeg & Folstad, 2017). Template based response mechanism (Adamopoulou & Moussiades, 2020a)

ELIZA based on linguistic rules and pattern matching procedure majorly. (Bhattacharjya et al., 2022)

In 1972, PARRY appeared; It acted as a patient with achizophrenia. (Colby, Weber, & Hilf, 1971).

PARRY was used in an experiment in 1979 when five psychiatrist judges interviewed by teletype a patient to decide whether he was a computer program or real schizophrenic patient. It also has a low speed of responding, and it cannot learn from the conversation. (Adamopoulou & Moussiades, 2020b)

AI is firstly used in the domain of the chatbots with the construction of Jabberwacky in 1988. (Jabberwacky, 2019)

Jabberwacky was written in CleverScript, a language based spreadsheets that facilitated the development of chatbots, and it used contextual pattern matching to respond based on previous discussions. Still, Jabberwacky cannot reply to high speed and work with a massive number of users (Jwala, 2019).

Eliza and Alice were the first chatbots developed using pattern recognition algorithms. The disadvantage to this approach is that the response are entirely predictable, repetitive, and lack of human touch. Als there is no storage of past responses which can lead to looping conversations. (Adamopoulou & Moussiades, 2020a)

ALICE (1995) pattern matching without any actual perception of the whole conversation (Marietto et al., 2013).

Its knowledge base consisted of about 41, 000 templates and related patterns, a vast number comparing to ELIZA that had only 200 keywords and rules. (Heller, Procter, Mah, Jewell, & Cheung, 2005).

The user input is represented by rule patterns, while the chatbot’s output is represented by rule template, A.L.I.C.E. knowledge base. So it well understood fact that the new data objects in AIML factually a major improvement than ELIZA. (Bhattacharjya et al., 2022)

2001: SmarterChild (Molnar & Zoltan, 2018), could retrieve information from databases about movie times, sport scores, stock prices, news, and weather.

Following the ELIZA and Chatscript, we have seen that high rise in development of application of machine learning alogrithms in chatbots and emergence of new architectures of chatbots is a reality with the emergence of Deep Learning Algorithms in this era. (Bhattacharjya et al., 2022)

After then Apple siri, IBM Watson, Google Asssistance, Microsoft Cortana and Amazon Alexa (Adamopoulou & Moussiades, 2020b)

Siri had difficulties hearing the interlocutor, who has heavy accent or in the presence of noise(Soffar, 2019)

Watson could understand the natural human language well enough to win two previous champions on the quiz competition “Jeopardy”(Adamopoulou & Moussiades, 2020b)

Google assistance delivers information to user predicting their requirements. But it has no personality and its question may viaolate the user’s privacy as it is linked directly to their Google Account.(Adamopoulou & Moussiades, 2020b)

Major drawback of Cortana was it can run a program that will install malware (Cortana Security flaw means your PC may be comprised, 2018).

Same year amazon introduced Alexa, which is built into devices for home automation and entertainment and making in this way the internet of things (IoT).(Adamopoulou & Moussiades, 2020b)

Microsoft Xiaolace, ai chatbot which has IQ and EQ which established long relationships with its users, taking into account the cultural peculiarities and ethical issues (Zhou, Gao, Li, & Shum, 2019).

Alexa and cortona are two chatots that were integrated to communicate with each other. (Nimavat & Champaneria, 2017).

What are significances of chatbot?

Forty percent (40%) of user requests are emotional than informative. (Xu, Liu, Guo, Sinha, & Akkiraju)

The duration of human-chatbot conversation is long. People often use concise language with poor vocabulary or even lousy language (Hill, Randolph Ford, & Farreras, 2015).

Although we live in an age when our interlocutor can be a real person or a chatbot without caring about his true identity. (Dale, 2016), a bias against gender is exposed (Costa, 2018).

57% of companies are agreeing that chatbots can help them to get a large return on their investment with less efforts (research conducted by Acenture). (Bhattacharjya et al., 2022)

Chatbots will help in changing or updating the passwords etc. (Bhattacharjya et al., 2022)

In spite of IoT and Blockchain based systems with secure architecture for communications still chatbots are hassle free way of conversational solution.

Chatbot should be built in a way that acts as a tool, a toy, and a friend at the same time. (Adamopoulou & Moussiades, 2020a)

What are types of chatbot?

Chat-based/ Conversational, and Task based Chatbots (Adamopoulou & Moussiades, 2020b)

Chatbots are divide based on various param like knowledge domain, service provided, goals, input processing and generating response, human aid. Building a method.

Chatbots are two kinds : Task oriented declarative chatbots and data driven and predictive (conversational) chatbots

Task-oriented (declarative chatbots are only used to perform one function, there are know as single prupose programs. This uses Natural language processing, some ML which will generate responses which are automated but in other cases responsed which are conversational for the use queries. These chatbots interactions are considered as highly specific, structured, mostly suitable to support service function. These give queries like business hours, normal transactions etc.

Data driven and predictive (conversational) chatbots are knowledgeable, highly interactive, customized than task specific bots. These bots uses predictive intelligence, analytics in order to allow customization base on the user profiles and previous (past) user behavior. Some examples are like Alexa, and Siri.

What is ChatGPT ? Discuss along with its history and differences with normal chatbots.

How chatGPT works? Explain with diagram.

2. Literature reivew

Reivew of more than 10 papers from journal (2019-2023)

Discuss

ChatGPT and its applications

Industry applications>> education, health, medicine, industry, research

NLP Applications >> content generation, text summarization, machine translation, QA,…

chatGPT and its Pros / Cons / limitations

ChatGPT and its technical implementation with diagram

ChatGPT and its comparison with other AI-based chatbots

ChatGPT and performance issues

1. Analysis

Analyze using 10 or more papers

Critically analyze >> cross-check statement presented in one paper with that in another paper, present your opinion as well.

3.1 Ethical issues

3.2 Trust issues

3.3 Accountability issue

1. Conclusion

Present your final verdicts / recommendations based on your study