# AN EXPERT SYSTEM LIKE ELIZA TO TALK WITH DEPRESSED PATIENTS

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# Abstract-

[Joseph Weizenbaum](https://en.wikipedia.org/wiki/Joseph_Weizenbaum)’s ELIZA, running the DOCTOR script, was created to provide a [parody](https://en.wikipedia.org/wiki/Parody) of "the responses of a non-directional psychotherapist in an initial psychiatric interview" and to "demonstrate that the communication between man and machine was superficial".While ELIZA is most well known for acting in the manner of a psychotherapist, this mannerism is due to the data and instructions supplied by the DOCTOR script.ELIZA itself examined the text for keywords, applied values to said keywords, and transformed the input into an output; the script that ELIZA ran determined the keywords, set the values of keywords, and set the rules of transformation for the output. Weizenbaum chose to make the DOCTOR script in the context of psychotherapy to "sidestep the problem of giving the program a data base of real-world knowledge",as in a Rogerian therapeutic situation, the program had only to reflect back the patient's statements. The algorithms of DOCTOR allowed for a deceptively intelligent response, which deceived many individuals when first using the program.

Weizenbaum named his program ELIZA after [Eliza Doolittle](https://en.wikipedia.org/wiki/Eliza_Doolittle), a working-class character in [George Bernard Shaw](https://en.wikipedia.org/wiki/George_Bernard_Shaw)'s [*Pygmalion*](https://en.wikipedia.org/wiki/Pygmalion_(play)). According to Weizenbaum, ELIZA's ability to be "incrementally improved" by various users made it similar to Eliza Doolittle, since Eliza Doolittle was taught to speak with an [upper-class](https://en.wikipedia.org/wiki/Upper-class) [accent](https://en.wikipedia.org/wiki/Accent_(dialect)) in Shaw's play. However, unlike in Shaw's play, ELIZA is incapable of learning new patterns of speech or new words through interaction alone. Edits must be made directly to ELIZA’s active script in order to change how the program operates.

# Introduction-

ELIZA was a computer program written by Joseph Weizenbaum of MIT University in the late 60s which is the first chatterbot, i.e. a program that can partially mimic a human in a conversation with a human. In many ways ELIZA is has provided insights not just into what a serious NLP system should achieve but also has provided a lot of insight into human reactions to computer systems which look like “intelligent” systems but are not so. ELIZA was not meant to be an AI system; it was meant to be a toy or a parody system. As Weizenbaum mentions ELIZA was supposed "to play (or rather, parody) the role of a Rogerian psychotherapist engaged in an initial interview with a patient". However, the reaction to the ELIZA program by the test subjects was completely unexpected and many formed an emotional attachment to the “therapist”. Weizenbaum was very disturbed by the unexpected reaction to ELIZA by lay and that was one of the reasons why he wrote the book “Computer Power and Human Reason” an attempt to clarify his position on computerscience, AI, and its relations to human society.

# Literature Review-

The literature review has covered several selected papers that have focused specifically on Chatbot design techniques in the last decade. A survey ofnine selected studies that affect Chatbot design has been presented, and the contribution of each study has been identified. In addition, a comparison has been made between Chatbot design techniques in the selected studiesand then with the Loebner Prizewinning Chatbot techniques. From the survey above, it can be said that the development and improvement of Chatbot design is not grow at a predictable rate due to the variety of methods and approaches used to design a Chatbot. The techniques of Chatbot design are still a matter for debate and no common approach has yet been identified. Researchers have so far worked in isolated environments with reluctance to divulge any improved techniques they have found, sequently, slowing down the improvements to Chatbots. Moreover, the Chatbots designed for dialogue systems in the selconected studies are, in general, limited to applications. General-purpose Chatbots need improvements by designing more comprehensive knowledge bases.

# Proposed Methodology-

It is a computer program which has natural language and is designed to represent the superficiality b/w artificial intelligence and human. It always simulates the conversation by using two methodologies that are:

1. Parsing: this technique includes analysing the input text and manipulating using several NLP functions; for example, trees in Python NLTK.
2. Pattern matching: it is the technique that is used inmost Chatbotsandit is quite common in question-answer systems depending onmatching types, such asnatural language enquiries, simple statements, or semantic meaning of enquiries.
3. AIML: it is one of the core techniques that are used to teach the model what choice to make when a question is asked.

# Result & Discussion-

Lay responses to ELIZA were disturbing to Weizenbaum and motivated him to write his book [*Computer Power and Human Reason: From Judgment to Calculation*](https://en.wikipedia.org/wiki/Computer_Power_and_Human_Reason), in which he explains the limits of computers, as he wants to make clear in people's minds his opinion that the anthropomorphic views of computers are just a reduction of the human being and any life form for that matter. In the independent documentary film [*Plug & Pray*](https://en.wikipedia.org/wiki/Plug_&_Pray) (2010) Weizenbaum said that only people who misunderstood ELIZA called it a sensation.

ELIZA has been referenced in popular culture and continues to be a source of inspiration for programmers and developers focused on artificial intelligence. It was also featured in a 2012 exhibit at [Harvard University](https://en.wikipedia.org/wiki/Harvard_University) titled "Go Ask A.L.I.C.E", as part of a celebration of mathematician [Alan Turing](https://en.wikipedia.org/wiki/Alan_Turing)'s 100th birthday. The exhibit explores Turing's lifelong fascination with the interaction between humans and computers, pointing to ELIZA as one of the earliest realizations of Turing's ideas.

# Conclusion-

ELIZA, while itself a relatively simple system, is important from the point of view of understanding human intelligence and hypothetical machine intelligence as it provokes us to inquire what intelligence is and what can be considered genuine intelligence or “original” intentionality in a machine. It also makes us consider the amount of what is perceived as intelligent behaviour of an agent lies in the eyes of the observer. The worry Weizenbam expresses in his article is genuine and is needed to be considered carefully from both an AI and ethical point of view.

# Review-

1. Weizenbaum, Joseph. Computer Power and Human Reason (New York: Freeman, 1976).
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[3] Suchman, Lucy A. Plans and Situated Actions: The problem of human-machine communication (Cambridge University Press, 1987